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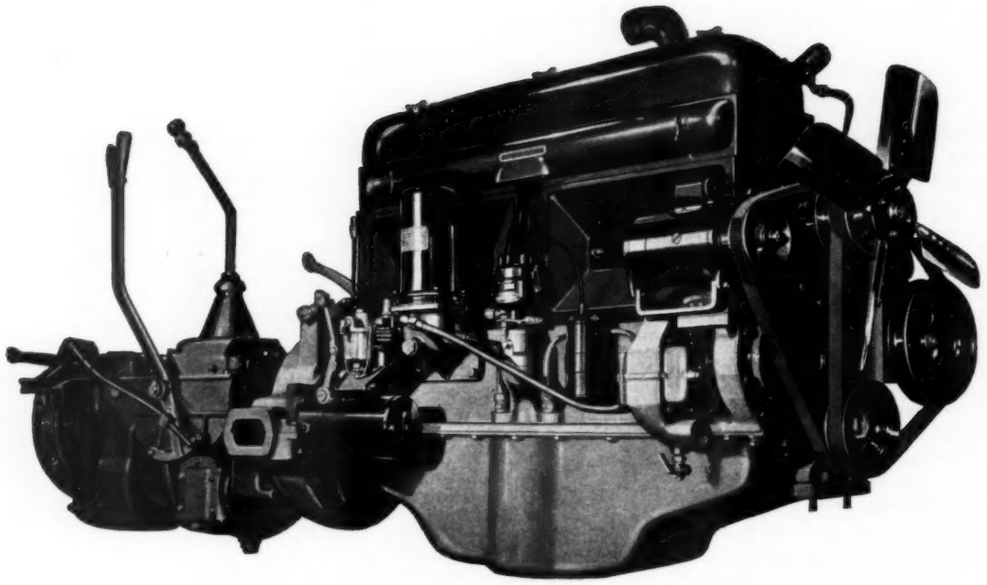

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**10** Balanced and counter-weighted four-bearing crankshaft.

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GENERAL MOTORS TRUCK COMPANY — Time Payments Available Through Our Own Y. M. A. C. — PONTIAC, MICHIGAN

# Widely Scattered Favorable Discoveries Made During Week of Serious Overproduction

By JAMES McINTYRE

THE increased production in the East Texas field in the past week was made possible by the Texas Railroad Commission's order increasing the allowable of that big field. The hot oil production of the field is said to have fallen to 46,000 bbls. per day. The Commission acted in spite of the fact that sound engineering opinion has it that any production over 400,000 bbls. per day in the East Texas field causes a draft on the excess energy in the producing formation and with the understanding that the field is infested with oil operators with no regard for the Commission, the NRA or the oil industry.

The big wildcat leasing campaign in the Gulf Coastal region of Texas and Louisiana has spread northerly beyond the limits of the coastal area and has reached into the area north of the capital city of Austin. In development work interest was centered upon the Gulf Production Co's. No. 2 Kirby in the Cleveland district in Liberty County, 1,866 feet away from the discovery well. No. 2 Kirby had reached a depth of 5,650 feet without having touched the sand from which the first well produces, and this was regarded as not favorable. A test six miles south of the discovery well is dry and abandoned.

In Southwest Texas a test on an 18,000-acre block in Frio County about 40 miles southwest of San Antonio, was flowing sulphur water from Edwards lime at 6,444 feet.

Western Texas operations were featured by the completion of a 1,650-bbl. well in the O'Brien field in Ward County, the largest well in the county in a long time.

The Cayuga block in Anderson County, East Central Texas is looking more favorable. The Tide Water-Seaboard test is running 441 feet higher on top of the Woodbine section than the nearest other test. Leon County wildcat tests are showing no more favorable signs than before.

In Section 7-16-11, north of the Elm Grove field, Bossier Parish, Louisiana, a wildcat well blew in with a 25,000,000-foot gas production. It was drilled to 3,020 feet.

The Newalla structure in Oklahoma City, Oklahoma, sprang into prominence in the past week when a wildcat well in Section 19-11-1e found oil in Hunton lime, which rose in the hole 2,300 feet topping 1,800 feet of mud. The Wilcox sand is the objective. It is 13 miles east and several miles south of Oklahoma City.

In Kansas the most important new showing was in a wildcat in Russell County in Section 22-13-14w which had 2,000 feet of oil in the hole from Oswald lime, the most important pay in that county.

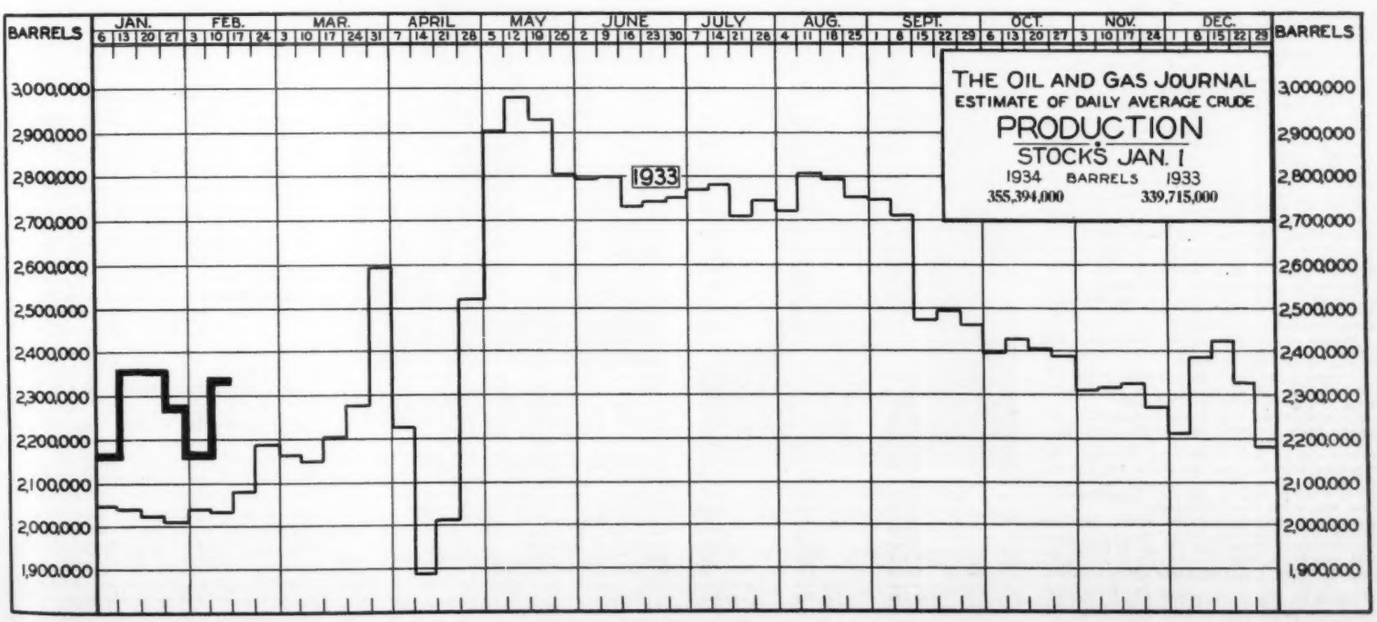
Five Porter Township wells in Midland County, add 7,000 bbls. initial production to Michigan's daily potential, which has risen to 125,000 bbls. per day.

## Crude Oil Production in the United States

Estimated daily average production for the week ending February 10, and a comparison with previous week and one year ago, follows:

| | Feb. 10 | Feb. 3 | Feb. 11, 1933 |
|---|---|---|---|
| Oklahoma— | | | |
| Oklahoma City | 206,365 | 94,320 | 87,455 |
| Seminole-St. Louis | 91,045 | 82,665 | 96,270 |
| Remainder of State | 207,530 | 206,410 | 190,490 |
| Total Oklahoma | 504,940 | 383,395 | 374,215 |
| East Texas— | | | |
| Lathrop | 197,625 | 189,950 | 114,710 |
| Kilgore | 141,835 | 136,320 | 92,095 |
| Joiner | 125,550 | 120,675 | 93,692 |
| Total East Texas | 465,010 | 446,945 | 300,497 |
| West Texas | 123,622 | 123,045 | 157,935 |
| North Central Texas | 83,635 | 83,822 | 69,661 |
| Texas Panhandle | 40,161 | 41,973 | 42,343 |
| East Central Texas | 43,124 | 43,196 | 57,954 |
| Gulf Coast—Texas | 156,573 | 155,164 | 131,839 |
| Southwest Texas | 41,310 | 45,535 | 52,385 |
| Total State of Texas | 953,435 | 939,680 | 812,614 |
| Kansas | 106,195 | 108,355 | 99,460 |
| North Louisiana | 27,640 | 27,961 | 30,415 |
| Gulf Coast—Louisiana | 47,498 | 45,167 | 32,243 |
| Arkansas | 31,230 | 32,125 | 31,450 |
| Eastern Fields | 123,700 | 123,500 | 109,000 |
| Rocky Mountain area | 79,140 | 79,080 | 75,301 |
| California— | | | |
| Santa Fe Springs | 43,250 | 40,500 | 54,000 |
| Long Beach | 63,500 | 52,750 | 67,500 |
| Playa Del Rey | 9,750 | 8,950 | 12,250 |
| Elwood | 11,000 | 11,600 | 12,250 |
| Kettleman Hills | 48,000 | 49,000 | 55,500 |
| Remainder of State | 293,500 | 273,200 | 260,500 |
| Total California | 469,000 | 436,000 | 462,000 |
| Total United States | 2,342,778 | 2,175,263 | 2,026,698 |

Increase 167,515 Bbls. Daily.



# Mid-Continent Refinery Operations Guided by Federal Allotment of Gasoline Production

By W. T. ZIEGENHAIN

During February Mid-Continent refinery crude runs will be greatly influenced by the "suggestions" of those delegated to bring actual gasoline production and gasoline stocks within the volume allotted by the Planning and Co-ordination Committee and approved by Administrator Ickes for this area. Based principally upon actual returns on questionnaires sent to individual refiners, the estimated crude runs of Mid-Continent refiners during the month will be 456,619 bbls. daily, an increase of 8,259 bbls. over the estimated runs for last month. The new figure is approximately 33,000 bbls. higher than the estimated operations of February a year ago, and 55,000 bbls. higher than two years ago.

Along with the fact that there is little difference in the schedules for the two months of this year, the same general statement may be applied to the total runs of each of the eight divisions of the Mid-Continent. The most important change shown is in the East Texas refinery runs which will be 3,780 bbls. more daily than in January. Minor decreases are reported in the total runs of Oklahoma, Arkansas and North Central Texas plants.

West Texas and Panhandle plants account for much of the balance of the increase while approximately 1,000 bbls. has been added to the daily runs of the Southwest Texas plants.

### East Texas Operations

Eyes have been focused upon the East Texas refinery operations month by month, first, because they are taken as an indication of the effectiveness of Federal and state supervision of crude production in the field and more recently, gasoline production which must be absorbed as "distress" material. As each month passes, however, those in the industry are forced to consider East Texas refinery operations as a more permanent and substantial market factor. To reach this position, East Texas plants are being given new names almost monthly and the less efficient units are being closed down while in the more efficient and better equipped plants, cracking units are being added. The consolidation of operations is not lessening the volume of crude runs as may be seen by comparing the month-to-month estimated runs. To contradict this statement, some one might say that no one will know the actual volume of crude that has been refined through East Texas plants over and above the figures generally reported, but in many such instances, the oil was not actually refined, but instead, was hastily heated in a still to produce a distillate containing practically all of the gasoline but which was shipped at a reduced freight rate. In some instances the degree of contamination was not sufficient to destroy the oil as a motor fuel and it was marketed as gasoline, but in other instances this distillate was shipped to conditioning plants and after going through an expensive redistillation procedure was made into a good motor fuel. This sort of thing is passing out of the picture and East Texas refinery operations are assuming a routine similar to those of other areas. An intensifying of these consolidations is anticipated as a result of more stringent Federal control through the levying of taxes upon crude refined but this will not necessarily mean a lower total gasoline yield. In the list of name changes for the month, the Pine Refining Co. is seen to have taken over the Alamo Refining Co. to operate the 2,500-bbl. plant at Camps Switch; the Gladewater Production Co. has sold its Gladewater plant to the Hawk Refining Co.; and the Keystone Refining Co. has acquired the 1,000-bbl. plant at Gladewater that formerly operated as the Texas Refining Co.'s No. 2. One new plant has been added to the list, namely, the Wichita Refining Co.'s skimming plant now under construction at Gladewater.

### North Central Texas

In the North Central Texas area, relatively few plants are shown as idle. Crude runs during February will remain approximately the same as January, namely, 42,000 bbls. daily. The only change in the list is the omission of the Wichita Refining Co.'s plant formerly

(Continued on Page 53)

## Mid-Continent Refinery Operations

**Average Daily Crude Runs (Barrels)**

(Based on estimates compiled first of each month by The Oil and Gas Journal)

| | 1929 | 1930 | 1931 | 1932 | 1933 | 1934 |
|---|---|---|---|---|---|---|
| January | 508,550 | 535,460 | 478,795 | 405,910 | 399,405 | 448,360 |
| February | 506,800 | 519,355 | 470,125 | 411,280 | 407,125 | 456,619 |
| March | 514,950 | 531,500 | 449,634 | 401,155 | 423,445 | ..... |
| April | 530,530 | 555,250 | 497,391 | 419,750 | 441,000 | ..... |
| May | 577,500 | 574,300 | 510,540 | 436,160 | 470,460 | ..... |
| June | 583,030 | 572,250 | 567,915 | 440,765 | 479,987 | ..... |
| July | 565,800 | 548,475 | 588,840 | 433,255 | 525,845 | ..... |
| August | 555,250 | 526,400 | 590,545 | 427,710 | 518,510 | ..... |
| September | 552,300 | 498,710 | 588,105 | 430,430 | 526,749 | ..... |
| October | 544,720 | 518,800 | 472,190 | 401,995 | 495,756 | ..... |
| November | 545,473 | 506,700 | 480,440 | 408,180 | 481,335 | ..... |
| December | 540,630 | 478,360 | 456,525 | 416,275 | 434,275 | ..... |

**Operations by Refinery Districts**

| | Feb. 1 dly. crude capacity | February dly. crude runs | January dly. crude runs | February daily increase |
|---|---|---|---|---|
| Arkansas | 37,550 | 20,100 | 20,200 | *100 |
| East Texas | 178,600 | 71,350 | 67,570 | 3,780 |
| Kansas | 182,700 | 92,900 | 92,700 | 200 |
| North Central Texas | 105,300 | 42,500 | 42,560 | *60 |
| North Louisiana | 41,750 | 28,900 | 27,900 | 1,000 |
| Oklahoma | 297,500 | 140,050 | 140,985 | *935 |
| Southwest Texas | 32,100 | 13,590 | 12,555 | 1,035 |
| West Texas and Panhandle | 101,975 | 47,229 | 43,890 | 3,339 |
| Total | 977,475 | 456,619 | 448,360 | 8,259 |

*Decrease.

**OKLAHOMA**

| Company and location— | Daily capacity | Aver. daily runs Feb. | Aver. daily runs Jan. |
|---|---|---|---|
| Anderson-Prichard Oil Corp., Cyril | 6,000 | 4,000 | 4,000 |
| Altitude Petroleum Corp. (J. H. Peacock Refining Co.), Oklahoma City | 3,000 | 300 | 300 |
| Associated Petroleum Corp., Allen | 8,000 | (*) | (*) |
| Barnsdall Refineries, Inc., Barnsdall | 6,000 | 3,000 | 3,000 |
| Barnsdall Refineries, Inc., Okmulgee | 10,000 | 2,400 | (*) |
| Bell Oil & Gas Co., Grandfield | 4,500 | 2,200 | 2,200 |
| Black Gold Refining Co., Oklahoma City | 2,500 | 1,000 | 1,200 |
| Century Petroleum Corp., Oklahoma City | 2,500 | (*) | (*) |
| Champlin Refining Co., Enid | 16,000 | 6,000 | 6,000 |
| Columbia Oil Corp., Oklahoma City | 3,500 | (*) | (*) |
| Continental Oil Co., Ponca City | 30,000 | 20,000 | 20,000 |
| Crescent Refining Co., Holdenville | 1,000 | (*) | (*) |
| Cushing Refining & Gasoline Co., Blackwell | 1,700 | 1,500 | 1,500 |
| Cushing Refining & Gasoline Co., Cushing | 4,500 | 2,000 | 2,500 |
| Deep Rock Oil Corp., Cushing | 10,000 | 9,000 | 9,000 |
| Eason Oil Co., Enid | 5,000 | 2,300 | 2,500 |
| Empire Oil & Refining Co., Okmulgee | 4,000 | 2,150 | 2,600 |
| Empire Oil & Refining Co., Ponca City | 12,000 | 6,800 | 6,500 |
| Gem Refining Co., Oklahoma City | 1,000 | (*) | (*) |
| Globe Oil & Refining Co., Blackwell | 7,500 | 6,000 | 6,000 |
| Government Refining Co., No. 1, Oklahoma City | 1,000 | (*) | 400 |
| Government Refining Co., No. 2, Oklahoma City | 3,500 | 1,500 | 2,000 |
| Hanger Refining Co., Oklahoma City | 1,000 | 300 | 250 |
| Johnson Oil Refining Co., Cleveland | 6,000 | 4,000 | 5,000 |
| Major Petroleum Products Co., Oklahoma City | 2,000 | 650 | 750 |
| Mid-Continent Petroleum Corp., West Tulsa | 40,000 | 18,000 | 18,000 |
| Marathon Oil Co., Bristow | 5,000 | 2,250 | 2,250 |
| Oklahoma City Refining Co., Oklahoma City | 2,500 | (*) | (*) |
| Phillips Petroleum Co., Okmulgee | 6,000 | 4,000 | 4,000 |
| Producers Oil Co., Bristow | 2,500 | 1,000 | 1,000 |
| Producers & Refiners Corp., West Tulsa | 6,000 | 3,000 | 3,000 |
| Pure Oil Co., Muskogee | 9,000 | 6,000 | 6,000 |
| Rock Island Refining Co., Beckett | 6,000 | 3,200 | 3,200 |
| Sinclair Refining Co., Sand Springs | 8,000 | 2,400 | 2,400 |
| Sooner State Refining Co., Oklahoma City | 300 | (*) | 85 |
| Sun Oil Co., Yale | 5,000 | 1,500 | 1,250 |
| Sunray Oil Co. (C. E. Wright, receiver), Allen | 7,000 | 2,300 | 2,300 |
| Sunshine Refining Co., Seminole | 1,000 | 300 | 300 |
| Texas Co., West Tulsa | 15,000 | 7,000 | 7,500 |
| Texas Pacific Coal & Oil Co., Wynnewood | 3,000 | 1,000 | 1,000 |
| Tide Water Oil Co., Drumright | 15,000 | 7,000 | 7,000 |
| Triangle Producing & Refining Co., Oklahoma City | 1,000 | 650 | 550 |
| Wilcox Oil & Gas Co., Bristow | 5,000 | 3,000 | 2,300 |
| Wirt Franklin Petroleum Corp., Ardmore | 4,000 | 2,000 | 2,000 |
| Yale Oil Corp., Yale | 2,000 | 350 | 350 |
| York Refining Co., Oklahoma City | 2,000 | (*) | 800 |
| Total | 297,500 | 122,050 | 140,985 |

*Shut down.

**KANSAS**

| Company and location— | Daily capacity | Aver. daily runs Feb. | Aver. daily runs Jan. |
|---|---|---|---|
| Altitude Petroleum Corp., Chanute | 5,000 | (†) | (†) |
| Altitude Petroleum Corp., Kansas City, Mo. | 3,000 | 300 | 300 |
| Barnsdall Refineries, Inc., Wichita | 4,000 | 2,000 | 2,000 |
| Derby Oil Co., Wichita | 8,000 | 3,500 | 3,500 |
| Dickey Refining Co., McPherson | 5,000 | 800 | 800 |
| Eldorado Refining Co., Eldorado | 4,500 | 3,000 | 3,000 |
| Falcon Refining Co., Inc., Great Bend | 700 | 400 | 400 |
| Globe Oil & Refining Co., McPherson | 10,000 | 7,200 | 7,200 |
| Golden Rule Refining Co., Wichita | 1,500 | 700 | 800 |
| Kanotex Refining Co., Arkansas City | 12,000 | 4,500 | 4,500 |
| National Refining Co., Coffeyville | 6,500 | 4,500 | 4,500 |
| Phillips Petroleum Co., Kansas City | 15,000 | 10,000 | 10,000 |
| Shell Petroleum Corp., Arkansas City | 22,000 | 10,000 | 12,000 |
| Sinclair Refining Co., Coffeyville | 12,000 | 7,500 | 7,500 |
| Sinclair Refining Co., Argentine | 9,500 | 4,500 | 4,500 |
| Skelly Oil Co., Eldorado | 23,000 | 12,700 | 12,500 |
| Standard Oil Co. of Kansas, Neodesha | 20,000 | 5,000 | 5,000 |
| United Oil & Refining Co., Hutchinson | 1,500 | (*) | (*) |
| Vickers Petroleum Co., Potwin | 3,500 | 2,300 | 2,200 |
| White Eagle Refining Co., Augusta | 16,000 | 14,000 | 12,000 |
| Total | 182,700 | 92,900 | 92,700 |

*Shut down. †Operating cracking unit, using gas oil.

**WEST TEXAS AND PANHANDLE**

| Company and location— | Daily capacity | Aver. daily runs Feb. | Aver. daily runs Jan. |
|---|---|---|---|
| Active Oil Corp., Arno | 1,500 | (*) | (*) |
| Aero Refining Co., Pecos | 225 | 15 | 10 |
| Coltex Refining Co., Colorado | 10,000 | 5,500 | 6,000 |
| Concho Refining Co., San Angelo | 250 | 75 | 30 |
| Cosden Oil Co., Big Spring | 12,000 | 5,684 | 4,000 |
| Danciger Refineries, Inc., Pampa | 6,500 | 5,000 | 4,500 |
| Howard County Refining Co., Big Spring | 1,500 | 300 | (*) |
| McNutt Refining Co., El Paso | 2,000 | 580 | 700 |
| Panhandle Refining Co., Kings Mill | 2,000 | 1,000 | 1,000 |
| Paramount Refining Co., San Angelo | 2,000 | 225 | 250 |
| Pasotex Petroleum Co., El Paso | 14,000 | 4,000 | 4,200 |
| Phillips Petroleum Co., Borger | 30,000 | 19,500 | 18,000 |
| Shamrock Oil & Gas Co., Sunray | 2,000 | 1,500 | 1,500 |
| Shamrock Oil & Gas Co., Meldavis | 1,000 | (*) | (*) |
| Sinclair Refining Co., El Paso | 2,500 | 800 | 800 |
| Texas Co., El Paso | 2,000 | 400 | (*) |
| Texas Co., Amarillo | 4,000 | 2,500 | 2,500 |
| West Texas Refining Co., Pecos City | 6,000 | (*) | (*) |
| Wickett Petroleum Co., Wickett | 2,500 | 150 | 400 |
| Total | 101,975 | 47,229 | 43,890 |

*Shut down.

# Amended Agreements and Corrected Contracts Have Been Sent to Companies for Signatures

By ANDREW M. ROWLEY

WASHINGTON, D. C., Feb. 12.—The purchasing and marketing agreements with six official forms of sales contracts attached to the marketing agreement, as redrafted to embody modifications requested by Harold L. Ickes, oil administrator, were approved here last week by representatives of companies which had signed the original agreements and by the Planning and Co-ordination Committee. These agreements and official forms of contracts have been sent to all companies signing the original agreements on December 7 last, with the request the new agreements and contracts be signed again and returned here by February 15.

Some companies already have signed the agreements. When the meeting of representatives of signatory companies convened here last Wednesday, a majority of executives of the companies who had signed the agreements last December were present. When it became apparent the modifications and changes in the agreements and contracts probably would be acceptable to the different companies, a number of the chief executives of the companies returned home, leaving at the meeting here representatives chiefly concerned in the marketing agreement and contracts. When the agreements and contracts were approved, many executives in position to sign had returned home and it became necessary to mail the agreements and contracts to them.

While there had been rumors to the effect it might be difficult to obtain signatures to the marketing agreement of companies representing 85 per cent of the crude runs to stills as of last November, a provision of the agreement which must be met before the agreement can become effective, it is felt now the necessary percentage of refiners will sign the agreement. The former agreement was signed by refiners representing somewhat more than the required 85 per cent of crude runs to stills. The fact that the three-day meeting here failed to develop any real objection to the new agreements and contracts and the modifications requested by Mr. Ickes indicates the new instruments will be signed by the required percentage of refiners within a very short time.

### Pooling Agreement

Changes made in the purchasing, or pooling agreement, were so slight it is felt all former signatories will sign the redrafted agreement at once. As soon as the signed agreements are received here they will be presented to Secretary Ickes for his approval. As he has been kept informed as to the revisions made and as these revisions are simply what he requested, it is believed he will approve the agreements very quickly after they are given him with the necessary number of signatures.

Immediately upon his approval, a meeting of representatives of companies signing the purchasing agreement will be called, and these representatives will constitute the board of governors of the National Petroleum Agency, the organization provided for in the purchasing agreement. These governors then will select officers and an executive committee and a manager who will have direct supervision of the operation of the agency. The purpose of this agency is to purchase, hold, and, in an orderly manner, dispose of surplus gasoline which threatens the stability of the oil price structure, in an effort to bring the prices of gasoline into proper relationship with the present price of crude oil and to maintain and support such relationship. That relationship is that 36-gravity crude in the Mid-Continent should be priced 18.5 times the price of 60-64 octane gasoline, in tank car, Group 3.

It is still believed Howard Bennette, president of the Western Petroleum Refiners Association, will be selected as manager of the National Petroleum Agency. Offices will be established by the agency in principal marketing centers, such as New York, Tulsa and Chicago and it is expected main headquarters of the agency will be maintained in Washington. When the original pooling agreement was signed December 7, it was understood the agency was underwritten to the extent of $10,000,000 by the signatory companies.

### Effective Within 10 Days?

Efforts are being made here to make the agreements and contracts effective within the next 10 days. Naturally, it will require some time to put into operation the different provisions and to obtain the benefit of the official forms of contracts. But it is the intention to make the agreements and contracts effective just as quickly as possible and, it is understood, Secretary Ickes is as anxious as anyone else that these matters be decided and the petroleum industry be placed on a sound operating basis so that it can get back on its feet and help in general business recovery.

Provisions are made in the agreement for handling situations which might develop in case the 15 per cent of the refining industry which might not sign the marketing agreement start price wars or engage in other practices threatening the stability of conditions. These provisions, in addition to the operations of the National Petroleum Agency, are believed adequate to handle any situation which might arise.

These agreements and official form of contracts will guide the operations of at least 85 per cent of the business and will eliminate those practices and methods which caused so much trouble in the past. Those who do not subscribe to these agreements and contracts can be dealt with quickly if they institute any practices inimical to the welfare of the industry as a whole or if they threaten the general price structure by cutting prices and starting price wars.

### Tax Provision to Stop Hot Oil

The new revenue bill, carrying provisions for taxing crude oil production at the well and crude oil received at refineries and natural gasoline production, undoubtedly will pass quickly and become law. Those provisions, it is believed, will stop production of hot oil quickly. It seems as if it is more dangerous to violate Federal Government tax provisions than almost any other statute. A number of oil men here have mentioned this week what happened to Al Capone. They indicated the same thing would happen to hot oil producers under the new revenue bill.

Imports of crude oil are limited to about 67,000 bbls. daily. Crude oil production is limited to consumer demand. There are agreements tending to stabilize conditions and to maintain a proper relationship between crude oil and gasoline prices. There will be as many investigators and prosecutors as is necessary to assure operation of the code and the prevention of violations, as funds for these men will be derived from the new taxes provided for in the revenue bill for 1934.

### P. & C. Committee Busy

The Planning and Co-ordination Committee, representing the industry under the code, is in session here every day. The marketing subcommittee evidently forgot yesterday was Sunday for they were in session all day. Conditions throughout the country are considered and violations of the code are brought to the attention of the proper authorities and action against violators urged.

### Depletion Clause

The petroleum industry is especially interested in the depletion provisions of the revenue act of 1934 introduced into Congress last week by the Ways and Means Committee of the House. This provision follows:

"Section 114. (3) Percentage Depletion for Oil and Gas Wells—In the case of oil and gas wells the allowance for depletion under Section 23(m) shall be 27½ per centum of the gross income from the property during the taxable year, excluding from such gross income an amount equal to any rents or royalties paid or incurred by the taxpayer in respect of the property. Such allowance shall not exceed 50 per centum of the net income of the tax (computed without allowance for depletion) from the property, except that in no case shall the depletion allowance under Section 23 (m) be less than it would if computed without reference to this paragraph."

The Ways and Means Committee also adopted tax provisions in Sections 604 and 605 published in The Oil and Gas Journal of February 8, page 9. These provisions relate to the tax of one-tenth cent per barrel on crude oil produced at the wells and one-tenth cent per barrel on crude oil received at refineries and one-tenth cent per barrel on natural gasoline produced and manufactured. The provision for an additional tax of one-half cent per gallon on crude oil imports was not adopted, the committee reconsidering its former approval of this section and finally rejecting it.

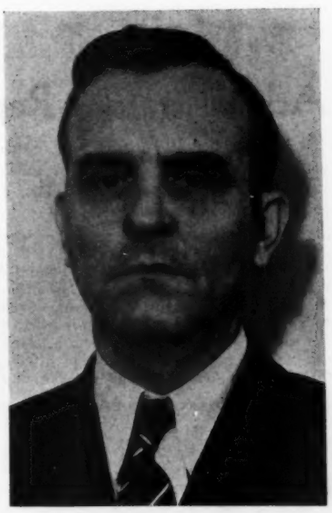
# Texas Petroleum Council Making Plans for Prosecution of Code Violations

AUSTIN, Tex., Feb. 12.—John E. Kilgore, vice president and general counsel of the Texas Petroleum Council, was in Austin Wednesday laying the groundwork for the council's campaign against hot oil in conferences with Attorney General Allred, Chairman C. V. Terrell of the Railroad Commission and other state officers. Mr. Kilgore expressed himself as greatly pleased with the cordial attitude toward the council and the desire to co-operate shown by the attorney general and the commission.

R. LLOYD WHEELOCK
New President of Texas Petroleum Council, Corsicana

"The council's one purpose is to dry up the hot oil," Mr. Kilgore said. "It seeks to help the state and Federal officers charged with that duty in every possible manner, but in no way to assume their functions. The council simply represents an effort on the part of the industry to organize itself in support of law enforcement and toward ending the rule of the oil racketeer."

Mr. Kilgore, Marvin Croom, the council's East Texas manager, and Allen Peden, vice president and secretary, went to Dallas for a meeting of the President's advisory committee, at which R. Lloyd Wheelock, recently elected president, presided. Federal enforcement officers and code officials, including Charles I. Francis, LaVergne F. Guinn, J. M. Collette and Lee Barrows were invited to confer with the council regarding its co-operation with the Federal forces.



JOHN E. KILGORE
General Counsel, Texas Petroleum Council, Wichita Falls

Evidence is practically complete on some 20 odd cases which the council plans to lay before the proper authorities in the immediate future.

# Revised Marketing and Pooling Agreements Are Submitted to Administrator for Approval

By ANDREW M. ROWLEY

WASHINGTON, D. C., Feb. 12.—Chairman Wirt Franklin of the Planning and Co-ordination Committee announced the conclusion of the marketing and pooling greements in the following letter to signers of the two agreements of December 7, 1933:

"We are happy to announce that these agreements have been rewritten to embody the modifications of the petroleum administrator in new and complete instruments. These, including the official forms of sales contracts in connection with the marketing agreement, have been printed, and two complete sets are enclosed herewith. Certain changes on minor matters and to cover new questions that had arisen were made as a result of conferences held here this week (to which all signers were requested to come) and on suggestions made by representatives of the administrator. These changes undoubtedly improve the agreements, and those who attended the conferences were well pleased when they adjourned.

"In the marketing agreement, Section 14, which is new, was inserted to take care of Pacific Coast operators, in view of the high octane rating of their gasoline. And the Subparagraph 3 of section second in Form M-1 and similar provisions in other forms were inserted to meet the situation growing out of California gasoline sales for delivery on the Atlantic Seaboard.

"We are now ready to go. It is necessary, however, that parties to the agreements re-sign. Those who signed the petroleum agency agreement of December 7 should sign the enclosed petroleum agency agreement of February 5 in lieu thereof; those who signed the marketing agreement of December 7 should sign the enclosed marketing agreement of February 5 in lieu thereof; those who signed both agreements of December 7 should sign both of the enclosed. When all counterparts thus signed are received here they will be bound together and handed to the administrator for his formal approval.

"We are extremely anxious to have all these agreements signed and returned here to us so that we may receive them by the fifteenth, except in the case of California which may require a little longer. Documents from that section should be returned by air mail. The status of the industry is such at this time that all possible speed should be made.

"The effective date of the marketing agreement will be announced as soon as possible. It is necessary first to have it again signed by 85 per cent of the refining industry based on November runs to stills.

"Referring again to the matter of dispatch, we would appreciate a telegram from you stating that you have signed and mailed the document or documents, as the case may be. Just as soon as telegrams warrant, we will call a meeting of the governors of the petroleum agency.

"Thank you for your continued cooperation.

Planning and Co-ordination Committee.
By: WIRT FRANKLIN, Chairman."

### Text of Marketing Agreement

Made and entered into on the fifth day of February, 1934, among the signatory companies engaged in the petroleum industry in the United States, superseding an agreement dated the 7th day of December, 1933.

For mutual and valuable considerations and pursuant to Section 4 (a) of Title 1 of the National Industrial Recovery Act, the parties hereto do now and hereby among themselves and each with each and all of the others make and enter into this agreement relating to the marketing of motor fuels in continental United States and the territories of Hawaii and Alaska.

#### Wholesale and Retail Margins

1. The parties hereto are obliged to allow and maintain such marketing margins for distributors, jobbers and/or wholesalers as shall be determined from time to time in each of the six regions established under the code of fair competition for the petroleum industry by agreement of 75 per cent in number of the refiners who may be parties hereto and who sell any of their motor fuels to distributors, jobbers and/or wholesalers located in the particular region, and when the marketing margin is so determined it shall bind all parties hereto.

In no event shall the minimum gross marketing margin in such cases on motor fuels of 60 octane and above be less than 6 cents per gallon, or one and one-half times the seller's authorized margin on such motor fuels to undivided dealers buying from the purchaser, whichever is the greater, and in no event shall the maximum gross marketing margin in such cases on motor fuels below 60 octane, be more than 4½ cents per gallon, or one and one-half times the seller's authorized margin on such motor fuels to undivided dealers buying from the purchaser, whichever is less.

The marketing margin or commission for bulk station (wholesale) commission agents who own bulk station (wholesale) facilities, or such bulk station and also service station facilities, shall be such an amount as, when expressed in cents per gallon on average monthly sales and added to the undivided dealer margin, shall not exceed the gross marketing margin determined for distributors, jobbers or wholesalers. Commissions include all fixed or flat rentals paid by the supplier on retail and/or bulk plant facilities owned by commission agents.

Retail dealers shall have a gross margin on motor fuels of 60 octane and above of 3½ cents per gallon for the class of accounts known as divided resale accounts and 4 cents per gallon for the class of accounts known as undivided resale accounts. On motor fuels below 60 octane the retail dealer's gross margin shall be 2½ cents per gallon for divided resale accounts and 3 cents per gallon for undivided resale accounts.

#### Divided and Undivided Dealer

The differential of one-half cent per gallon between the margins allowed "divided" and "undivided" resale accounts, respectively, provided for in this agreement, may be changed and/or amended with respect to wholesale and/or retail dealers at any location upon the vote of 75 per cent in number of the refiners parties to this agreement who sell any of their motor fuels to distributors, jobbers, wholesalers, and/or retailers in that particular locality, if approved by the Planning and Co-ordination Committee and the administrator under the petroleum code.

The term "undivided" as applied to resale accounts in this agreement shall apply to sales of motor fuels only and shall not include sales of kerosene, furnace oils, distillates, tractor and Diesel fuel oils, lubricating oils and greases, or any product other than motor fuels sold at wholesale or retail by any distributor, jobber, wholesaler or retailer.

In no event shall the marketing margins as established in this section be changed except by complying with the provisions of Section 4 of this agreement.

#### Acting as Broker

2. General or established supply arrangements covering motor fuels between refiners and/or substantial trade-branded companies parties to this agreement who resell in ocean vessels, barges, tank cars and/or at bulk and retail stations are not subject to the margins for distributors, jobbers and/or wholesalers, provided such exemption is first approved by the petroleum administrator. Such arrangements between companies and their affiliated, subsidiary or controlled companies shall be exempt in that respect without approval.

#### Six Stabilization Committees

3. The general chairman of each of the six regional committees under the petroleum code shall appoint a committee of three to be known as the regional stabilization committee, to consist of a representative from each of at least two integrated companies and wherever possible one representative of an independent refiner. The representative of one integrated company shall be designated as chairman of the regional stabilization committee and be subject to removal from the committee at any time on 24 hours' notice from the general chairman of the regional committee. The other two members of the committee shall be appointed for a period of three months each and shall not be subject to removal. Upon termination of the three months' period these two members must be replaced by representation from similar classes of companies. A majority vote shall be necessary to determine a particular action.

Any party to this agreement, desiring to reduce prices to meet local competition, before doing so shall place all the facts before the regional stabilization committee for determination as to the necessity for meeting competition. This committee shall at once pass upon the matter and decide what action shall be taken, and in case no decision is arrived at by said committee within two legal business days the party so desiring to meet competition shall have authority to do so.

The members of the regional stabilization committee shall have authority to attempt to negotiate restoration of markets reduced below normal.

#### Require Vote of 75 Per Cent

4. If it shall be found that changes or more definite rulings in regard to margins are necessary or desirable at any time in any locality, the same may be accomplished by agreement of 75 per cent in number of the refiners parties to this agreement who sell any of their motor fuels to distributors, jobbers, wholesalers and/or dealers in that particular locality, subject, however, to the approval of the Planning and Co-ordination Committee and the petroleum administrator; provided, however, that the parties hereto shall be required to observe the minima and maxima fixed and provided for in Section 1. And with such approval the method of adjustment provided for in the last preceding section of this agreement may be changed for particular localities through the organization of local stabilization committees or otherwise as may be determined by the Planning and Co-ordination Committee with the approval of the petroleum administrator.

#### State Stabilization Committee

5. There shall also be a standing committee of three in each state, appointed by the general chairman of the regional committee under the petroleum code, to be known as the state stabilization committee. The requirements of this agreement in reference to regional stabilization committees, with respect to representation, qualification, selection, term of service, removal, replacement and action by vote, as set forth in Section 3 hereof, shall apply to state stabilization committees. The District of Columbia may be included with Maryland or treated as though it were a separate state, as

# Administrator's Report on Crude Stocks

Stocks of domestic and foreign crude petroleum at the close of the week ended February 3 totaled 341,467,000 bbls., a decrease of 950,000 bbls. from the total of 342,417,000 bbls. on hand at the end of the preceding week, Harold L. Ickes, Secretary of the Interior and administrator of the code of fair competition for the petroleum industry, announced today. This decrease, which follows an increase of 97,000 bbls. during the previous week, comprised a decline of 1,088,000 bbls. in domestic crude stocks and an increase of 138,000 bbls. in foreign crude stocks.

Current reports of the industry indicate a material decline in crude oil production and a smaller decrease in crude runs to stills. Imports of crude averaged 75,000 bbls. daily as compared with 100,000 bbls. the previous week. The approximate daily average balance of crude oil during the week ended February 3 was as follows (barrels): Production, 2,160,000; imports, 75,000; decrease in stocks, 136,000, equals runs to stills, 2,290,000; exports, fuel, losses, etc., 81,000.

**CRUDE PETROLEUM STOCKS REPORTED BY COMPANIES HOLDING 100,000 BBLS. OR MORE**

| | Stocks held by reporting companies | | |
|---|---|---|---|
| Grade of crude oil— | Jan. 27, 1934 (bbls.) | Feb. 3, 1934 (bbls.) | Change from Jan. 27, 1934 (bbls.) |
| Pennsylvania Grade | 5,264,000 | 5,283,000 | +19,000 |
| Other Appalachian, including Kentucky | 1,228,000 | 1,248,000 | +20,000 |
| Lima-N. E. Indiana-Michigan | 1,653,000 | 1,577,000 | —76,000 |
| Illinois-S. W. Indiana | 11,442,000 | 11,269,000 | —173,000 |
| North Louisiana and Arkansas | 11,935,000 | 11,839,000 | —96,000 |
| West Texas and S. E. New Mexico | 31,893,000 | 31,889,000 | —4,000 |
| East Texas | 44,325,000 | 44,278,000 | —47,000 |
| Other Mid-Continent | 154,196,000 | 153,585,000 | —611,000 |
| Gulf Coast | 16,356,000 | 16,046,000 | —310,000 |
| Rocky Mountain | 27,195,000 | 27,229,000 | +34,000 |
| California | 33,968,000 | 34,124,000 | +156,000 |
| Total domestic crude | 339,455,000 | 338,367,000 | —1,088,000 |
| Foreign crude | 2,962,000 | 3,100,000 | +138,000 |
| Total crude | 342,417,000 | 341,467,000 | —950,000 |

shall be determined by the Planning and Co-ordination Committee with the approval of the petroleum administrator.

**Forms of Contract**

6. Official forms of contract applicable to all sales for resale of motor fuels have been prepared by the Planning and Co-ordination Committee, and when these forms are approved by the petroleum administrator the parties to this agreement shall use these forms and only these in such transactions. The forms contain provisions, among others, binding purchasers, of the several types therein specified, when reselling, to do so at the seller's authorized price or prices applicable to the particular kind of resale at the time of resale. It is understood, however, that this provision is subject to the provisions of Section 3 in regard to meeting local competition. Said official Forms M-1, M-1(a), M-2, M-3, M-4, M-4(a), M-5 and M-6 are hereto attached and made parts hereof.

**Cancel Old Contracts**

7. Existing contracts for the sale of motor fuels for resale with cancellation clauses shall be cancelled at the earliest date cancellable and renewed, if at all, upon the official form of contract.

8. Existing top price contracts for the sale of motor fuels which have a cancellation clause, whether the sale is for resale or consumption, shall be cancelled at the earliest date on which they can be cancelled, and if renewed shall be written without top price provisions.

9. Existing lease and agency, lease and license, and any exclusive dealing sales contracts with dealers made since August 19, 1933, in respect to motor fuels shall be cancelled forthwith. Any such contracts renewed since August 19, 1933, in accordance with Article 5, Rule 19, Paragraph (b), of the code, must be cancelled at the earliest cancellation date permissible under their terms. Any other such contracts which expire prior to August 19, 1934, shall not be renewed, and all having cancellation clauses permitting must be cancelled on or before that date.

10. Every case of doubt or dispute as to whether existing contracts are cancellable or the dates when they are cancellable shall be submitted immediately to the state stabilization committee of a state in which the performance of such contracts occurs, and the decision of the committee in such matters if and when approved by the regional stabilization committee shall be binding on the parties to this agreement.

**Penalties for Violation**

11. In event of a violation of any provision of this agreement, or of any provision of a contract made on official forms attached hereto, or of any provision of the petroleum code, upon a finding to that effect by the proper state stabilization committee, said committee shall promptly report such finding to the general chairman of the regional committee and to the Planning and Co-ordination Committee. Upon request of the general chairman of the regional committee, or upon request of the Planning and Co-ordination Committee, the petroleum administrator, or any agent duly authorized by him, shall, as soon as practicable, review the matter and if deemed necessary, hold or cause to be held a hearing with respect to such violation and determine whether the proper functioning of this agreement and of said code requires the suspension, for a period of time, of deliveries of motor fuels to the violator. In event the petroleum administrator, or any agent duly authorized by him, deems such suspension necessary the chairman of the state stabilization committee shall be notified. The chairman of the committee shall immediately notify all suppliers, parties to this agreement, selling motor fuels in the locality or localities where the violation has occurred to suspend deliveries to the offending distributor, jobber, wholesaler or retailer until further notice, and such deliveries shall be suspended accordingly. Each such supplier signatory to this agreement is bound to so suspend deliveries at once in every such case, and failure to do so shall constitute a violation of this agreement and of the rules and regulations of the petroleum administrator.

**Brokers Protected**

12. Nothing in this agreement shall be construed to prevent the payment to carload and cargo brokers of commissions on business ordinarily done by them.

13. The Planning and Co-ordination Committee, with the approval of the petroleum administrator, may except and exclude particular areas from the operation of this agreement, or any portion thereof, if and to the extent that the provisions hereof may conflict with other agreements approved by the Planning and Co-ordination Committee and the petroleum administrator.

**West Coast Octane Values**

14. Wherever in this agreement, or in the forms attached hereto, the word "sixty" or the figure "60" is used in reference to the octane rating of motor fuel, the word "sixty-three" or the figure "63" shall be substituted therefor in respect to sales for resale in the states of California, Oregon, Washington, Nevada, Arizona and the territories of Hawaii and Alaska: Provided, however, that when sales are made in any of said states or territories for consumption, delivery or resale outside of said states and territories, such sales shall be made on the Official Forms of Contract hereto attached without substitution of the word "sixty-three" or the figure "63" for the word "sixty" or the figure "60" respectively.

**Contracts Binding**

15. Obligations under this agreement shall apply, not only to the parties to the agreement, but the parties hereto shall extend and enforce these obligations so as to include their subsidiary and controlled companies and other agencies through which they operate. By controlled companies is meant those in which more than 50 per cent of the voting stock is owned or controlled.

16. The provisions of this agreement shall bind the successors, assigns, and legal representatives of the parties, and if any party hereto shall be merged or consolidated with another party hereto the party continuing the business shall succeed to and take over the benefits and burdens of the party so merged or consolidated.

17. This agreement shall not become effective until approved by the President of the United States or an officer, agent or agency duly authorized by him, and the President may withdraw such approval and terminate this agreement at any time upon finding that it is contrary to the public interest.

18. Even after this agreement has received the approval of the President or an officer, agent or agency duly authorized by him, it shall remain in abeyance until adopted by such percentage of the industry as may be found necessary to its practical operation, this to be determined by the Planning and Co-ordination Committee, with the approval of the petroleum administrator. In no event shall it go into effect until refiners whose runs to stills in the United States during the month of November, 1933, amounting to at least 85 per cent of the total runs to stills in the United States during said month, shall have become parties hereto and such fact is announced by the petroleum administrator.

**President May Cancel**

19. Since Title 1 of the National Industrial Recovery Act requires that certain provisions of Section 10(b) of said title shall be contained in each agreement approved, prescribed, or issued under said title, said section is here set forth in full and made a part hereof as follows: "The President may from time to time cancel or modify any order, approval, license, rule or regulation issued under this title; and each agreement, code of fair competition, or license approved, prescribed, or issued under this title shall contain an express provision to that effect."

20. After the conditions stated in Sections 17 and 18 have been met and complied with, this agreement shall become effective on such date as may be fixed by the Planning and Co-ordination Committee and shall remain in force until June 16, 1935, unless prior to that date it is terminated by the President of the United States, or unless Title 1 of the National Industrial Recovery Act shall cease to be in effect to the extent of permitting agreements of this kind.

21. This agreement may be signed in counterparts, and all counterparts taken together shall constitute the complete agreement.

In witness whereof the parties sign.

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# Text of National Petroleum Agency Agreement for Control of Crude and Gasoline Stocks

Made and entered into on the fifth day of February, 1934, among the signatory companies engaged in the petroleum industry in the United States, superseding an agreement dated the seventh day of December, 1933.

Under a code of fair competition for the petroleum industry, approved by the President of the United States pursuant to the National Industrial Recovery Act, and under the provisions of the act itself, efforts are being made to remedy undesirable conditions existing in this industry and to bring about stabilization. The Federal agency and the petroleum administrator under said code are issuing orders for the control of crude oil production and gasoline stocks, and the Planning and Co-ordination Committee under said code has submitted for the approval of the administrator the following definite objectives for the industry:

(a) Total crude oil stocks in the United States on July 1, 1934, shall show no increase over December 1, 1933, and the decrease, if any, shall not exceed 10,000,000 bbls.

(b) Total gasoline stocks in the United States on July 1, 1934, shall not exceed 46,000,000 bbls., exclusive of natural gasoline.

This contemplates that orders and allocations, touching crude oil production, imports, withdrawals from and additions to storage, and gasoline manufacture shall be such as to balance supply with consumer demand for petroleum products and to prevent the accumulation of supplies of crude oil or petroleum products in excess of desirable economic working levels.

The administrator under said code may at any time confer with said Planning and Co-ordination Committee and may redetermine in the light of existing conditions the proper objective to be attained with respect to the total gasoline stocks in the United States on July 1, 1934.

Therefore, and for mutual and valuable considerations, the parties hereto do now and hereby, among themselves and each with each and all of the others, make and enter into the following agreement:

**Subscription for Funds**

1. The parties hereto voluntarily associate themselves in a group to be known as the National Petroleum Agency. All members of this association shall participate in proportion to their interests as fixed by their respective subscriptions hereto, the amounts set opposite their respective names, and the signatories hereto severally agree to pay the amounts set opposite their respective names for the use of the association.

**Controlled by Board**

2. The control and management of this association shall be in a board of governors consisting of one governor nominated by each member, and such nominations may be changed by the member from time to time. The board of governors shall, at its first meeting, elect from its membership an executive committee of five persons, and such executive committee shall have all the power and authority of the board of governors (when the latter is not in session), subject to such policies, rules and regulations as may from time to time be fixed by the board of governors. The board shall fix the term of office and dates and method of election of executive committeemen. The board may elect a president, and one or more vice presidents, asecretary, a treasurer and a manager, and such other officers and assistants as it may deem advisable. It shall have the power to define the duties and fix the compensation of all such officers.

The board of governors shall from time to time prescribe policies, rules and regulations for the government of the association and the conduct of its business. It shall fix the dates and places of meetings, prescribe the notice to be given, define quorums for the transaction of business and, subject to the provisions of this agreement, its entire method of operation, including the location of its office and branch offices.

Each member of the association shall be entitled to one vote, to be cast by its representative on the board of governors, on all questions and matters coming before the board.

The administrator shall be given notice of any and all meetings of the board of governors and the executive committee, and the administrator, or his duly authorized representative, may attend the meetings of the board of governors and the executive committee, and shall have free access to the books and records of the agency.

**To Operate Until June 16, 1935**

3. This association shall continue until June 16, 1935, unless previously dissolved. It may be dissolved at any time after July 1, 1934, by a majority vote of all members of the board of governors representing members of the association having in the aggregate more than 50 per cent in amount of participation in the association. Upon dissolution its assets shall be reduced to cash and the balance on hand after the discharge of all liabilities shall be distributed among the members in proportion to their respective interests.

**Time of Payment**

4. The amounts subscribed by the signatories hereto shall be paid at such time and place as may be called by the board of governors and within 10 days after receipt of notice of the call. No member shall be liable for any amount beyond its subscription.

**Method of Operation**

5. The purpose of this association is to purchase, hold and, in an orderly way, dispose of surplus gasoline which threatens the stability of the oil price structure, in an effort to bring the prices of gasoline into proper relationship with the present price of crude oil and to maintain and support such relationship. For the purposes of this agreement the proper relationship between Mid-Conti-

(Continued on Page 57)

# Final 1933 Government Report Shows Increasing Domestic Demand With Export Decline

By C. O. WILLSON

The final figures on supply and demand for oil products in 1933 which became available the past week from the yearly report of the Bureau of Mines, show an encouraging trend in the domestic consumption of refinery products which is offset in part by a decline in the export movement of the finished products. The upturn in the domestic demand for petroleum products ended a decline period of three years and with the expected improvement in business conditions, points to continued increases for 1934.

The decline in the foreign demand for products refined in the United States started in 1930 and at this time there is little on which to base a hope that this trend will also change and permit refiners to recover part of their lost export business. In 1929 the peak year in movement to foreign countries exports from the United States totaled 136,719,000 bbls. and the 1933 total was 69,822,000 bbls., a decrease of 66,897,000 bbls. or 49 per cent. The bulk of this decline is accounted for in the reduced shipments of gasoline, fuels and kerosene. This decrease of 180,000 bbls. daily reflects the fact that the industry in the United States has lost its previous strong position in foreign markets which in effect means that it will have to rely more and more on domestic markets for any future expansion.

**1933 COMPARED WITH PEAK**

Table showing percentage relationship of 1933 demand for crude oil and refinery products in relation to the peak demands.

| Product— | Pct. of peak | Year of peak |
|---|---|---|
| Total all oils ..... | 88.1 | 1929 |
| Crude runs to stills | 87.2 | 1929 |
| Motor fuels: | | |
| Total demand ..... | 88.0 | 1929 |
| Domestic demand .. | 92.6 | 1930 |
| Export demand .... | 44.5 | 1929 |
| Kerosene: | | |
| Total demand ..... | 77.4 | 1925 |
| Domestic demand .. | 96.1 | 1925 |
| Export demand .... | 38.0 | 1919 |
| Fuel oil, gas oil: | | |
| Total demand ..... | 74.3 | 1929 |
| Domestic demand .. | 76.4 | 1929 |
| Export demand .... | 43.0 | 1927 |
| Lubricating oils: | | |
| Total demand ..... | 69.5 | 1929 |
| Domestic demand .. | 72.3 | 1929 |
| Export demand .... | 62.5 | 1928 |

### Export Situation

Opinions of officials of representative companies do not point to any substantial upturn in export sales over the coming year with several predicting additional declines. The steady declines in export movement for refinery products is explained as being due to the increased supplies from other oil producing countries and the workings of the import tax laws which became effective in United States in 1932. This import tax has served to practically stop the importation of refinery products with the exception of fuel oil and gas oil and with a large decline in crude oil imports the decreased outlet for foreign crude and its products in United States has partially offset the loss of exports. However, the decline in imports of refinery products, when 1929 is compared to 1933, amounts to only 16,279,000 bbls., which was approximately 25 per cent of the decline in exports.

The actual development with the imposition of import taxes in United States was a shift in foreign and domestic operations on the part of three or four companies which were the principal importers. These companies were also operators of refineries in foreign countries or have since acquired facilities and when the import tax became effective they curtailed or eliminated their imports and directed the output of their foreign plants to foreign markets. To obtain a balance in their operations they made reductions in the export movement from their plants in the United States to offset the reduced imports.

At the same time Russia, Rumania, Dutch East Indies, Persia and some of the South American countries strengthened their position as producers of low-priced crude oil and now apparently are more strongly entrenched in world markets than ever before. By the end of the year Iraq will also enter this world market with a production which will total around 75,000 bbls. daily.

### Nationalistic Trend

The nationalistic trend in European governments in which every encouragement is given to the development of new producing properties and the construction of refineries has fitted into this general situation in which every country is endeavoring to make itself as independent as possible in regard to supplies of crude

(Continued on Page 53)

## Crude Oil and Refinery Situation Summarized—1933-1932

**Supply and Demand—Crude Oil (Bbls.)**

| | Total supply | Total demand | Excess Supply | Excess Pct. | Domestic production | Imports | Domestic demand | Exports | Stocks refinable crude Dec. 31 |
|---|---|---|---|---|---|---|---|---|---|
| 1933 | 931,647,000 | 915,968,000 | 15,679,000 | 1.7 | 898,874,000 | 32,773,000 | 879,265,000 | 36,703,000 | 355,394,000 |
| 1932 | 829,841,000 | 856,862,000 | 27,021,000 | 3.2 | 785,159,000 | 44,682,000 | 829,469,000 | 27,393,000 | 339,715,000 |
| Increase, 1933 | 101,806,000 | 59,106,000 | ..... | .... | 113,715,000 | †11,909,000 | 49,796,000 | 9,310,000 | 15,679,000 |
| Increase, 1933 | 12.3% | 6.8% | ..... | .... | 14.5% | †26.6% | 6% | 34% | 4.6% |

†Decrease.

**Supply and Demand—Refinery Products—Motor Fuel (Bbls.)**

| | Total supply | Total demand | Excess Supply | Excess Pct. | Domestic production | Imports | Domestic demand | Exports | Stocks Dec. 31 |
|---|---|---|---|---|---|---|---|---|---|
| 1933 | 408,296,000 | 407,329,000 | 967,000 | .2 | 408,284,000 | 12,000 | 378,143,000 | 29,186,000 | 55,426,000 |
| 1932 | 407,917,000 | 409,338,000 | *1,421,000 | *.3 | 399,712,000 | 8,205,000 | 373,900,000 | 35,438,000 | 53,805,000 |
| Increase, 1933 | 379,000 | †2,009,000 | ..... | .... | 8,572,000 | †8,193,000 | 4,243,000 | †6,252,000 | 1,621,000 |
| Increase, 1933 | .1% | †.5% | ..... | .... | 2.1% | †99% | 1.1% | †17.6% | 3% |
| **Kerosene** | | | | | | | | | |
| 1933 | 48,921,000 | 47,400,000 | 1,521,000 | 3.2 | 48,921,000 | ..... | 38,440,000 | 8,960,000 | 6,495,000 |
| 1932 | 43,907,000 | 44,265,000 | *358,000 | *.8 | 43,836,000 | 71,000 | 33,221,000 | 11,044,000 | 4,974,000 |
| Increase, 1933 | 5,014,000 | 3,135,000 | ..... | .... | 5,085,000 | †71,000 | 5,219,000 | †2,084,000 | 1,521,000 |
| Increase, 1933 | 11.4% | 7% | ..... | .... | 11.6% | †100% | 15.7% | †18.8% | 3% |
| **Gas Oil and Fuel Oil** | | | | | | | | | |
| 1933 | 327,028,000 | 341,764,000 | *14,736,000 | 4.5 | 313,811,000 | 13,217,000 | 321,395,000 | 20,369,000 | 122,287,000 |
| 1932 | 316,036,000 | 328,151,000 | *12,115,000 | 3.8 | 294,750,000 | 21,286,000 | 308,157,000 | 19,994,000 | 129,981,000 |
| Increase, 1933 | 10,992,000 | 13,613,000 | ..... | .... | 19,061,000 | †8,069,000 | 13,238,000 | 375,000 | †7,694,000 |
| Increase, 1933 | 3.5% | 4.1% | ..... | .... | 6.4% | †38% | 4.3% | 1.8% | †5.8% |
| **Lubricating Oil** | | | | | | | | | |
| 1933 | 23,805,000 | 23,962,000 | *160,000 | *.7 | 23,805,000 | ..... | 17,066,000 | 6,896,000 | 17,066,000 |
| 1932 | 22,445,000 | 25,079,000 | *2,634,000 | *7 | 22,433,000 | 12,000 | 16,614,000 | 8,465,000 | 16,614,000 |
| Increase, 1933 | 1,360,000 | †1,117,000 | ..... | .... | 1,372,000 | †12,000 | 452,000 | †1,569,000 | 452,000 |
| Increase, 1933 | 6% | †4,470 | ..... | .... | 6.1% | †100% | 2.7% | †18.5% | 2.7% |
| **Petroleum Wax (Lbs.)** | | | | | | | | | |
| 1933 | 506,415,000 | 601,210,000 | *94,795,000 | *18 7 | 469,560,000 | 36,855,000 | 353,272,000 | 247,938,000 | 68,833,000 |
| 1932 | 492,175,000 | 499,767,000 | *8,092,000 | *1.6 | 458,920,000 | 33,255,000 | 264,463,000 | 235,304,000 | 163,628,000 |
| Increase, 1933 | 14,240,000 | 101,443,000 | ..... | .... | 10,640,000 | 3,600,000 | 88,809,000 | 12,634,000 | †94,795,000 |
| Increase, 1933 | 3% | 20.3% | ..... | .... | 2.3% | 10.8% | 33.5% | 5.3% | †58% |

*Excess demand. †Decrease. Note—Total supply equals domestic production plus imports. Total demand equals domestic demand plus exports. Data on demand for refined products are based on refinery shipments.

**Crude Oil Runs to Stills and Total All Oils (Bbls.)**

| | Total crude to stills | Nat. gasoline production | % Gasoline yield from crude oil‡ | Total supply all oils* | Total demand all oils* | Stocks all oils Dec. 31 |
|---|---|---|---|---|---|---|
| 1933 | 861,254,000 | 33,610,000 | 46.5 | 980,228,000 | 971,972,000 | 601,453,000 |
| 1932 | 819,997,000 | 36,281,000 | 47.7 | 896,965,000 | 938,757,000 | 590,106,000 |
| Increase, 1933 | 41,257,000 | †2,671,000 | †1.2 | 93,263,000 | 33,215,000 | **11,347,000 |
| Increase, 1933 | 5% | †7.3% | .... | 10.4% | 3.5% | 1.9% |

*Total all oils includes crude oil, refined products, natural gasoline and benzol. **Total stocks not accurately comparable because certain revisions made as of August 31, 1933, have not yet been carried back to January 1, 1933. †Decrease. ‡Refinery yield including natural gasoline blended at refineries.

# Federal Court Upholds State Regulation in Texas; Bryant Would Restrict Federal Intervention

By L. E. BREDBERG
Fort Worth Bureau, The Oil and Gas Journal

FORT WORTH, Tex., Feb. 12.—An opinion of the majority of the three-judge Federal court which heard the case of the Amazon Petroleum Corp. and others a couple of months ago in Houston, written by Circuit Judge J. C. Hutcheson and supported by District Judge T. M. Kennerly, was announced today at Tyler and Sherman. Federal District Judge Randolph Bryant dissented from the holding of the other two members of the court.

The majority opinion upholds the present state oil production control in Texas, but held itself without jurisdiction in the questions raised as to the validity of the NRA and the oil code and regulations thereunder granting a severance, and this case was passed upon by Judge Bryant in a separate opinion. He held that the regulations of the oil code and the oil administrator under the code were invalid on producing and refining operations entirely within the State.

Judge Bryant said he would grant a stay on the portion of the case in which he held against the Federal Government, leaving the situation in status quo until an appeal can be had to the Supreme Court of the United States. This was in reply to a question by Charles I. Francis, special assistant United States Attorney General. An appeal will probably be filed pertaining to this part of the case, immediately.

However, in the course of Judge Bryant's opinion, he upheld Section 9-C of the National Recovery Act, which prohibits the movement in interstate commerce of oil or products produced contrary to state law or regulations. The upholding of this section, together with the approval of the present state proration orders, are construed by attorneys familiar with the case as upholding the two foundations of the present system of oil control.

Under present procedure the State's orders limit the production of oil to quotas arrived at by the U. S. Bureau of Mines and recommended to the State by that body. The Federal authorities prohibit the interstate shipment of oil produced in excess of these orders and quotas. Since, in the case of Texas, nearly 90 per cent of its oil is shipped out of the State, or moves in interstate commerce, it is believed generally that these two regulations will maintain to control the whole.

### Majority Opinion

The majority order revealed that Judges Hutcheson and Kennerly agreed with the plaintiffs on one elementary ground:

"We entirely agree with the plaintiffs that the laws of Texas charge the commission with the duty of conserving the natural resources of the State and that it may not, under any circumstances, delegate or surrender that function to another.

"We are more compelled to the conclusion that in this state of the record, for us to interfere with the commission to set up an administration of the field by injunction would be not only beyond our powers but greatly disastrous, when we consider that though all agree that a restriction to some extent is essential, those in the business and those who claim to know disagree so radically as to what that restriction should be.

"It is our duty to grant an injunction against state officials when the inequities of the bill are plain, but only when they are. They are not plain here. The injunction prayed for will be denied and the bill dismissed."

Discussing the Federal Government issues involved, the order said:

"The record does not show either an attempt on the part of Federal agents to dictate to and take over the functions of the commission nor a surrender by it to such agents of its delegated authority.

### Judge Bryant's Opinion

Judge Bryant, on the contrary said, as regards the validity of the Federal code regulations: "I have reached the conclusion that the regulations and the code provisions have no constitutional basis as applied to the facts in this case.

"Since the act in terms only authorizes the prohibition in interstate and foreign commerce of petroleum and the products," Judge Bryant said, "it certainly can not be expected to cover by regulation those who are obviously not engaged in the transportation of such products in interstate or foreign commerce or engaged at all in interstate or foreign commerce."

He said testimony submitted when the court heard the applications for injunctions against intrusion of Federal agents indicated that the complainants had not subscribed to the code and therefore were not subject to provisions provided for violations.

"Entertaining as I do," he said, "the gravest misgivings if not the absolute certainty of conviction that this provision of the act is invalid by reason of its delegation to the executive of legislative authority, yet conceding for the purposes of the decision to be valid, it is obvious that the President and his agents in their rules and regulations could exercise no greater authority nor to any greater extent than that which was exercised by Congress itself. This is limited to the transportation in interstate and foreign commerce of petroleum and the products thereof."

### Questions Code Regulations

Judge Bryant also said "regulations of the Secretary of the Interior have no reasonable or any relation to the will of Congress" expressed in the NRA and declared that to admit such authority was granted "is to go in the face of the terms of the act itself. Such an invasion," he said, "of the rights of the states is not permissible in our dual form of government."

Declaring that the plaintiff's suits involved another contest between state and Federal authority and more particularly the extent to which the Federal Government might go in matters usually handled by the state, Judge Bryant said:

"For the purpose of this opinion, it may be conceded that Congress may prohibit transportation in interstate and foreign commerce of petroleum and the products thereof produced or withdrawn from storage in excess of the amount permitted.

"The further exceedingly doubtful concession may be made that the act does not delegate legislative power and authority to the President, so that the essential point for decision is as to the validity of the regulations issued by the Secretary of the Interior and the provisions of the code and their binding effect, if any, upon the complainants under the facts disclosed in this matter."

Judge Bryant held it a matter of common knowledge that code provisions affected only interstate commerce. He said he believed that, as in other court tests of the commission's power, the commission, "instead of exercising the powers they have to prevent waste, they have, as has been previously stated, exercised those powers to effect an unauthorized, in fact, a prohibited end, the keeping of Texas production down to the arbitrary, the artificial amount, fixed as the quota of Texas oil" under agreements made to allocate the nation's total oil production to the states.

Judge Bryant held invalid the requirements of the Secretary of the Interior in regulations four and five under Section 10-A of the recovery act to require producers and refiners to make reports showing that their oil was produced within quotas.

Later in open court Judge Bryant also said that Regulations 12 and 7, requiring reports from pipe lines showing source of the oil, was illegal and requiring producers and refiners to keep books subject to inspection, showing the same information, was illegal. He said if indictments were returned by the grand jury under any of these regulations he would grant a demurrer against them.

Estimates on the amount of hot oil being produced and transported from the East Texas Field are from 35,000 to 40,000 bbls. daily.

The state attorney general's department is doing good work with its courts of inquiry in the field, filing on several producers and refiners and succeeding in throwing their properties into the hands of the receivers. This is the best and apparently the only method of "hitting the violators where it hurts," for they take no heed of injunctions. When that action is taken the violator loses his opportunity for making fast and big profits in his wells, and the receiver is paid for his time and trouble in operating the well, thus depriving the owner of a large part of the revenue.

### Federal Forces to Continue

The Federal forces in the field will no doubt continue to investigate producing properties and submit data obtained to the assistant attorney general at Tyler, but until the Supreme Court of the United States hears an appeal from the district court decision, there is little the Federal authorities can do about violations except in so far as they pertain to interstate shipments of illegally produced oil or such shipments of refined products made from "hot oil." Violators will be careful to prevent running afoul of the interstate shipment regulations and may elect to distribute the oil and refined products within the State, shipping out legally produced oil and products manufactured from that part of their production.

### New Hot Oil Device

Another practice for aiding overproducers and transporters of "hot oil" was unearthed during the week by investigations by men of the state attorney general's department. The investigations led to the partial exposure of dealings in forged Railroad Commission production permits. Two men were arrested by state Rangers charged with forging and with passing forged instruments. Faked commission permits bore the forged signatures of commission employes.

The confiscated permits authorized the handling of more than 3,000 bbls. of oil. The oil was to be shipped by truck to various destinations outside of East Texas, according to officers. Another bogus permit was involved in an alleged 2,000-bbl. illicit deal.

Secretary Ickes' proposal for levying one-tenth of 1 cent per barrel at the well head and refinery is considered one of

(Continued on Page 32)

# Government to Carry Case to Supreme Court at Once to Secure Decision

BY ANDREW M. ROWLEY

WASHINGTON, D. C., Feb. 13.—Questions involved in the Panama Refining Co. case on which Judge Randolph Bryant ruled yesterday in Texas will be taken to the U. S. Supreme Court as quickly as possible by the petroleum administration. J. Howard Marshall, assistant to the Attorney General and member of the Petroleum Administrative Board, who went to Texas last night in an army airplane, which passage had to be authorized by the President, is in Tyler conducting the Government's preparation to have questions involved passed upon by the Supreme Court.

The method of procedure to be followed, it is understood, will be to ask the Federal grand jury in session in Tyler, Tex., to issue indictments against violators of hot oil regulations. Plaintiffs in the Panama case may be among those against whom indictments will be requested. It is felt here Judge Bryant will quash these indictments and then an immediate appeal will be taken to the U. S. Supreme Court. It is said a direct appeal to the Supreme Court in such a case is possible and that the matter need not be referred to the circuit court.

Secretary Ickes said today that in case an unfavorable decision was made by higher courts on questions involved, "Congress is in session," the impression being given that additional legislation necessary might be requested.

In the meantime oil men here are quite concerned about the decisions and feel they will result in a considerable increase in production of hot oil and the manufacture of gasoline from this hot oil. They also feel the Texas Railroad Commission might increase the allowable crude oil production for that State under the Amazon case decision which validated orders of the commission.

### Indictments Returned

FORT WORTH, Tex., Feb. 13.—The Federal grand jury for the eastern district of Texas returned five indictments today against East Texas oil firms charging violations of sections of the NRA petroleum code and designed to provide a test case before the Supreme Court of the constitutionality of the code.

The indictments charged violations of that part of the code which Judge Bryant held invalid February 12 in a formal opinion as well as other code offenses. Indictments were returned against McMurrey Corp., L. M. Harris, P. E. Parson, J. D. Wrather, and five others.

# More Than High Octane Value Is Required to Make Gasoline an Economical Motor Fuel

By GEORGE G. BROWN and SIDNEY C. SINGER, Jr.
University of Michigan, Ann Arbor, Mich.

The relative knocking tendency of a fuel in an engine is customarily designated by the octane rating of the fuel, which is a number, arrived at by an empirical testing procedure, to indicate the relative maximum compression pressure that may be employed in an engine without audible detonation. However, once obtained, this rating may be, and often is, taken as a number which expresses the relative value of the fuel. Careful observers fully realize that the practical value of a fuel is dependent upon its volatility, which determines ease of starting and warming-up, as well as upon the independent property of octane rating, which indicates whether or not the fuel might be expected to knock. Even among careful observers octane number is frequently assumed to be a general measure of the power or mileage obtainable from a gallon of fuel. This assumption is unjustified except in specific cases, and the opposite may be true, depending upon the means used to increase the octane number.

### Motor Fuels

In an effort to evaluate fuel consumption and power output, in relation to the octane numbers of different types of fuels, benzene, absolute alcohol, and tetraethyl lead were employed as blending agents to raise the octane rating of a straightrun gasoline to values representative of "Third," "Regular," and "Premium" grades of gasoline. A fuel consisting of a mixture of alcohol, benzene, and tetraethyl lead was also prepared in an effort to obtain a nonknocking fuel. The compositions of these blends, together with their other properties, are given in Table 1 and Figure 1.

### Equipment

An A.S.T.M.-C.F.R. engine of the variable compression type, coupled directly to a Sprague electric cradle dynamometer, was used for all of the tests. The standard C.F.R. carburetor, while set for the air fuel ratio giving maximum knock under A.S.T.M. testing conditions, was used to determine the compression ratio at which incipient knock occurred for those fuels of equal octane number, as well as the compression ratio at which maximum power was developed. Then, under the same operating conditions, using a different carburetor to give a wider range of air-fuel ratios, fuel consumption and power were measured at these predetermined compression ratios over a range of air-fuel ratios.

The fuel system for the latter tests consisted of a storage tank in parallel with a fuel-weighing device, to supply the carburetor. The fuel-weighing balance had a mercury switch attached, by means of which relays were operated to start and stop a stop-watch and a revolution counter, automatically, thereby eliminating the human element in measuring the fuel quantities. By means of stopcocks, fuel could be drawn either from the supply tank or the weighing bottle.

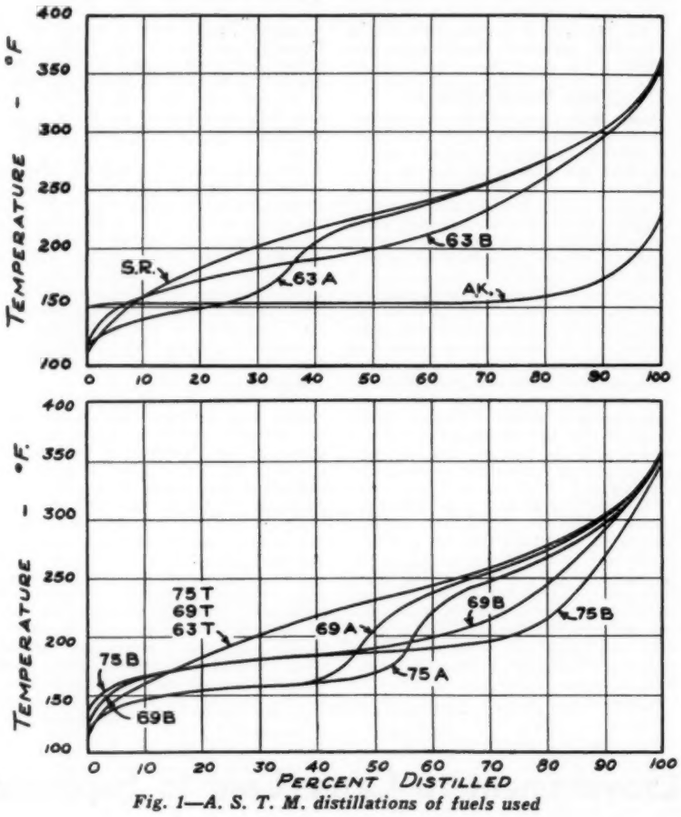


*Fig. 1—A. S. T. M. distillations of fuels used*

### Test Procedure

In preparing for a test the engine was thoroughly checked and allowed to run at 900 r.p.m. for from 1½ to 2 hours in order to obtain steady operating conditions. The tests were made with oil in the crankcase at 130° to 140° F., and spark advance and jacket cooling maintained as in A.S.T.M. octane-rating procedure. In order to avoid overheating the fuels of high latent heat, the heat input to the intake manifold was maintained constant at that rate sufficient to heat the straightrun gasoline mixture to 300° F.

Each test run was from 3 to 4 minutes' duration, with from 7 to 10 minutes between runs, and 15 to 20 minutes between fuel changes. These periods were found adequate to allow the engine conditions to become constant.

### Results

Corrected indicated horsepower values were obtained by adding the friction horsepower to the brake horsepower and correcting to 60° F. and 29.92 inches of mercury by the following formula[1]:

$$Hp_c = Hp_o \times \frac{P_c}{P_o}\sqrt{\frac{T_o}{T_c}}$$

[1]S.A.E. Handbook, 1933, page 595.

Where: P refers to pressure.
T refers to temperatures on the Rankin scale.

Subscripts c, o, and s, refer respectively to "corrected," "observed," and "standard" conditions.

For purposes of computing the fuel economy (indicated horsepower hours per gallon of fuel consumed), the uncorrected indicated horsepower values were employed with fuel gravities at 80° F.

The data on the 10 fuels tested at the air-fuel ratios giving maximum engine power are given in Table 2, representing performance under conditions that take full advantage of the high octane fuels. In all of the tests reported in Table 2 the compression ratio used was that which gave incipient knock with fuels of octane number equal to that of the fuel under test. When these corrected indicated horsepower values are plotted as a function of the octane number, as in Figure 3, it is seen that the power output varies uniformly with changes in the octane number independently of the substance blended with the gasoline provided the compression ratio is increased according to the octane number so as to take full advantage of fuels of high octane ratings.

However, when the fuel economy, or indicated horsepower hours per gallon (Table 2) is plotted as a function of the octane number, the effect of the blending agents is quite noticeable. The curve labeled "alcohol," in Figure 4, shows that economy or miles per gallon decreases as the octane number of the fuel is increased by blending alcohol even when the compression ratio has been increased to take full advantage of the higher octane numbers of the alcohol blends. On the other hand, the curves labeled "tel" and "benzene" in Figure 4 indicate that economy or miles per gallon increases as the octane number of the fuel is increased by blending either tetraethyl lead or benzine provided the compression ratio has been increased to take full advantage of the higher octane.

**TABLE 2—THE INDICATED HORSEPOWER AND FUEL CONSUMPTION AT AIR-FUEL RATIO FOR MAXIMUM POWER AND AT COMPRESSION RATIO FOR INCIPIENT KNOCK**

| Compression ratio | Fuel | Max. I.H.P.$_c$ | Lbs. fuel per hr. | I.P.H. hrs. per gal. fuel |
|---|---|---|---|---|
| 4.39 | S.R. | 3.54 | 1.93 | 10.50 |
| 4.44 | 63 A | 3.62 | 2.02 | 10.40 |
| 4.44 | 63 B | 3.62 | 2.00 | 10.90 |
| 4.44 | 63 T | 3.67 | 1.98 | 10.85 |
| 4.50 | 69 A | 3.75 | 2.10 | 10.30 |
| 4.50 | 69 B | 3.74 | 2.05 | 11.20 |
| 4.50 | 69 T | 3.75 | 2.01 | 10.75 |
| 4.59 | 75 A | 3.84 | 2.23 | 10.15 |
| 4.59 | 75 B | 3.80 | 2.13 | 11.35 |
| 4.59 | 75 T | 3.82 | 2.02 | 10.95 |

**TABLE 1—FUEL PROPERTIES**

| | Straightrun Gasoline | 8% $C_2H_5OH$ in S.R. | 24% $C_6H_6$ in S.R. | 0.6 cc. TEL per gal. S.R. | 15% $C_2H_5OH$ in S.R. | 41% $C_6H_6$ in S.R. | 1.44 cc. TEL per gal. S.R. | 20% $C_2H_5OH$ in S.R. | 52% $C_6H_6$ in S.R. | 1.98 cc. TEL per gal. S.R. | 75% $C_6H_6$ 25% $C_2H_5OH$ and 1.0 cc. TEL per gal. |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Symbol | S.R. | 63 A | 63 B | 63 T | 69 A | 69 B | 69 T | 75 A | 75 B | 75 T | A.K. |
| Octane number | 56 | 63 | 63 | 63 | 69 | 69 | 69-70 | 75 | 75 | 75 | 200+ |
| Gravity °A.P.I. (60°F.) | 63.30 | 62.19 | 54.88 | 63.11 | 61.06 | 49.44 | 63.06 | 60.41 | 45.82 | 62.82 | 40.63 |
| Compression ratio for incipient knock | 4.39 | 4.46 | 4.44 | 4.48 | 4.50 | 4.53 | 4.57 | 4.62 | 4.59 | 4.64 | 6.00 |
| I.B.P. | 108°.F | 116°F. | 118°F. | 110°F. | 120°F. | 125°F. | 108°F. | 117°F. | 131°F | 111°F | 150°F |
| 5 per cent | 140 | 133 | 150 | 145 | 137 | 157 | 142 | 137 | 160 | 145 | 152 |
| 10 per cent | 158 | 140 | 160 | 159 | 143 | 164 | 158 | 143 | 166 | 159 | 152 |
| 20 per cent | 184 | 149 | 173 | 181 | 151 | 173 | 181 | 151 | 172 | 181 | 152 |
| 30 per cent | 201 | 162 | 183 | 200 | 156 | 178 | 199 | 158 | 177 | 200 | 153 |
| 40 per cent | 218 | 206 | 191 | 216 | 160 | 184 | 215 | 161 | 181 | 215 | 153 |
| 50 per cent | 231 | 227 | 200 | 229 | 204 | 189 | 229 | 165 | 185 | 228 | 154 |
| 60 per cent | 245 | 239 | 214 | 243 | 237 | 198 | 240 | 225 | 189 | 242 | 154 |
| 70 per cent | 260 | 256 | 235 | 260 | 253 | 210 | 259 | 245 | 196 | 258 | 155 |
| 80 per cent | 277 | 277 | 265 | 279 | 273 | 246 | 279 | 269 | 214 | 280 | 162 |
| 90 per cent | 305 | 301 | 297 | 304 | 300 | 291 | 303 | 297 | 274 | 304 | 173 |
| 95 per cent | 324 | 323 | 315 | 323 | 319 | 317 | 322 | 315 | 300 | 322 | 177 |
| Endpoint | 348 | 347 | 343 | 350 | 345 | 340 | 34' | 344 | 335 | 348 | 214 |

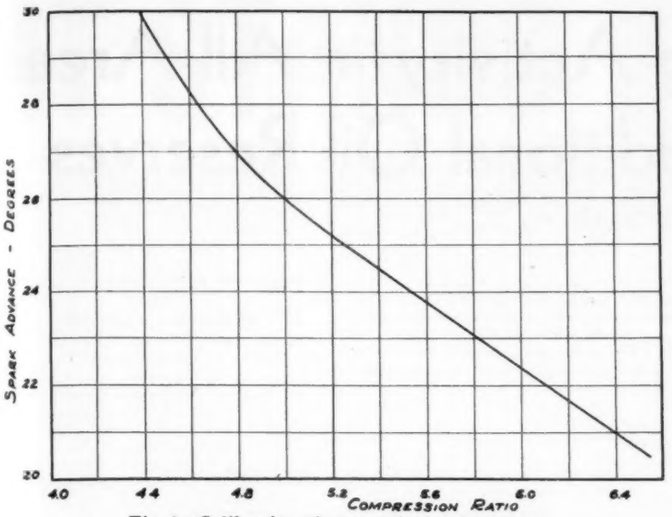


*Fig. 2—Calibration of automatic spark advance*

It is clearly shown in Table 3 that this gain in economy is not dependent upon octane numbers alone, as, for any increase in octane number, the gain obtained with benezene blends is greater than that obtained with tetraethyl lead blends, compared with an actual loss obtained with alcohol blends.

Although economy is dependent upon the nature of the fuel or blend, and apparently varies widely, regardless of octane number, Figure 3 indicates that the maximum engine power depends directly upon octane numbers when the compression ratio is varied to give incipient knock according to the octane number of the fuel under test. In other words the maximum engine power is directly dependent upon compression ratios when the compression ratio is varied according to the octane number of the fuel used.

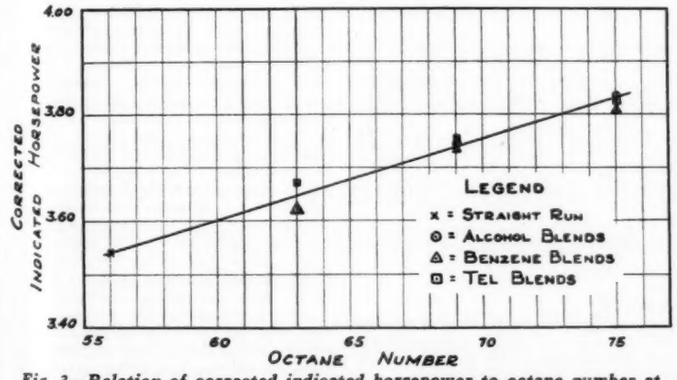


*Fig. 3—Relation of corrected indicated horsepower to octane number at compression ratios for incipient knock*

At high compression ratios, where knocking is severe, as covered by the data in Table 4, the power output bears little or no relationship to the octane number of the fuel used. This suggests the possibility that maximum engine power may

**TABLE 3—THE RELATIVE ECONOMY, OR HORSEPOWER HOURS PER GALLON OF FUEL, AT AIR-FUEL RATIO FOR MAXIMUM POWER AND AT COMPRESSION RATIO FOR INCIPIENT KNOCK**

| Compression ratio | Octane No. | Relative horsepower hours per gallon of fuel: Alcohol blends | Tetraethyl lead blends | Benzene blends |
|---|---|---|---|---|
| 4.39 | 56 | 1.000 | 1.000 | 1.000 |
| 4.44 | 63 | 0.990 | 1.038 | 1.039 |
| 4.50 | 69 | 0.981 | 1.023 | 1.067 |
| 4.59 | 75 | 0.967 | 1.042 | 1.080 |

be dependent largely or wholly upon the compression ratio used, and not upon the octane number of the fuel.

For this reason the straightrun gasoline of 56 octane number, the 52 per cent benzene blend of 75 octane number, and

**TABLE 4—THE INDICATED HORSEPOWER AND FUEL CONSUMPTION AT COMPRESSION RATIOS FOR MAXIMUM POWER AND CONSTANT AIR-FUEL RATIO FOR EACH FUEL**

| Compression ratio | Fuel | Max. I.H.P.$_c$ | Lbs. fuel per hr. | I.H.P. hrs. per gal. fuel |
|---|---|---|---|---|
| 5.50 | S.R. | 3.90 | 1.88 | 12.00 |
| 5.50 | 63 A | 3.95 | 2.05 | 11.10 |
| 5.50 | 63 B | 3.88 | 1.95 | 11.95 |
| 5.50 | 63 T | 3.84 | 1.95 | 11.35 |
| 5.75 | 69 A | 4.00 | 2.02 | 11.55 |
| 5.75 | 69 B | 4.03 | 2.10 | 11.95 |
| 5.75 | 69 T | 4.01 | 1.95 | 11.85 |
| 6.25 | 75 A | 4.07 | 2.06 | 11.45 |
| 6.25 | 75 B | 4.00 | 2.04 | 12.50 |
| 6.25 | 75 T | 4.02 | 1.89 | 12.25 |

a mixture of alcohol, benzene, and tetraethyl lead of well over 200 octane number were compared at the same compression ratios over a range in compression ratios from 4.39 to 6.25, with the mixture set for maximum engine power at 4.39 compression ratio. The results are given in Table 5 and Figure 5 which, up to compression ratios of 5, confirm the results given in Tables 2 and 4 in indicating that maximum engine power depends almost wholly upon compression ratio. The lower curve in Figure 5 serves equally well to describe the straightrun fuel of 56 octane rating and the benzene blend of 75 octane rating, as the difference in maximum engine power at any compression ratio between these two fuels is within the experimental error.

The upper curve of Figure 5, which represents maximum engine power as a function of compression ratio for a fuel of exceptionally high octane rating, coincides with the curve for the 56 and 75 octane number gasolines up to a compression ratio of 5. Above this range, the latter fuels of commercial octane numbers knock severely, and further increases in compression ratios gave no further gains in maximum engine power. Previous experience[3] indicates that fuels of 56 octane number might be expected to give a lower maximum engine power at a lower compression ratio than fuels of 75 octane number. But in the A.S.T.M.-C.F.R. engine, the spark is automatically retarded as the compression ratio is increased (Figure 2), and this may allow the fuels of lower octane rating to continue developing increased power at higher compression ratios than would otherwise be the case.

[3]George Granger Brown, "Determination of Detonation Ratings," The Oil and Gas Journal, February 28, 1929.

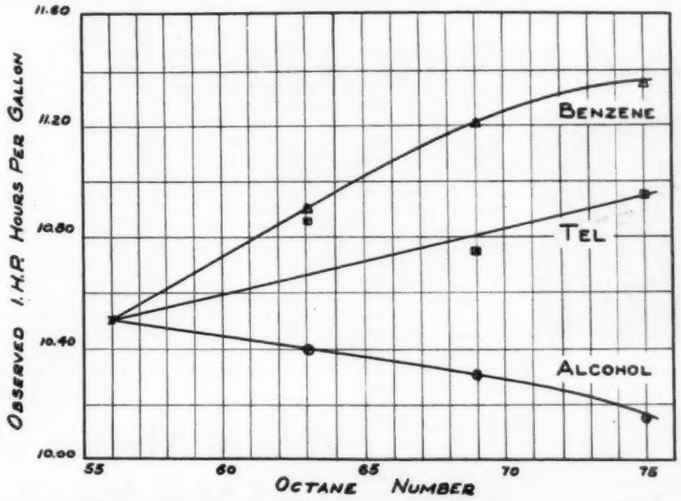


*Fig. 4—Fuel economy as related to octane numbers at compression ratios for incipient knock*

### Conclusions

These data indicate that under uniform operating conditions as to mixture heating, atmospheric pressure, etc.:

1. The mileage obtained from any particular motor fuel is dependent primarily upon the chemical composition (heating value per gallon) of that fuel, rather than upon its octane number.

2. The power output of a particular engine is dependent primarily upon the compression ratio employed, and under the conditions of test is apparently independent of the octane number of the fuel over the present commercial range of octane numbers, except that fuels of higher octane number allow the use of higher compression ratios without an accompanying, and detrimental, fuel knock.

The authors wish to express their gratitude to the White Star Refining Co. and to the Ethyl Gasoline Corp. for their co-operation in making the tests possible.

**TABLE 5—THE INDICATED HORSEPOWER AND FUEL CONSUMPTION WITH CONSTANT AIR-FUEL RATIOS OVER A WIDE RANGE OF COMPRESSION RATIOS**

| Compression ratio | Straightrun: I.H.P.$_c$ | Straightrun: I.H.P. hrs. per gal. | 52% Benzene 48% Straightrun: I.H.P.$_c$ | 52% Benzene 48% Straightrun: I.H.P. hrs. per gal. | 75% Benzene 25% Absolute alcohol 1 cc. TEL per gallon: I.H.P.$_c$ | 75% Benzene 25% Absolute alcohol 1 cc. TEL per gallon: I.H.P. hrs. per gal. |
|---|---|---|---|---|---|---|
| 4.39 | 3.53 | 9.95 | 3.49 | 10.70 | 3.52 | 9.47 |
| 4.50 | 3.57 | 10.16 | 3.57 | 10.68 | 3.56 | 9.56 |
| 4.59 | 3.60 | 9.65 | 3.60 | 10.52 | 3.60 | 9.69 |
| 4.80 | 3.65 | 10.51 | 3.70 | 10.90 | 3.66 | 9.82 |
| 5.00 | 3.70 | 11.47 | 3.69 | 11.19 | 3.71 | 10.18 |
| *5.00 | ..... | ..... | 3.63 | 10.84 | ..... | ..... |
| 5.20 | 3.71 | 10.61 | 3.72 | 11.30 | 3.77 | 9.86 |
| *5.20 | 3.75 | 11.46 | ..... | ..... | ..... | ..... |
| 5.50 | 3.74 | 11.20 | 3.75 | 11.40 | 3.86 | 10.31 |
| 5.75 | 3.74 | 11.67 | 3.76 | 11.41 | 3.91 | 10.34 |
| 6.00 | 3.74 | 11.72 | 3.73 | 11.43 | 4.01 | 10.72 |
| *6.00 | ..... | ..... | ..... | ... | 3.97 | 10.86 |
| 6.25 | 3.79 | 11.42 | 3.75 | 11.39 | 3.99 | 10.49 |

*Duplicate check determinations made after the completion of tests on each fuel.

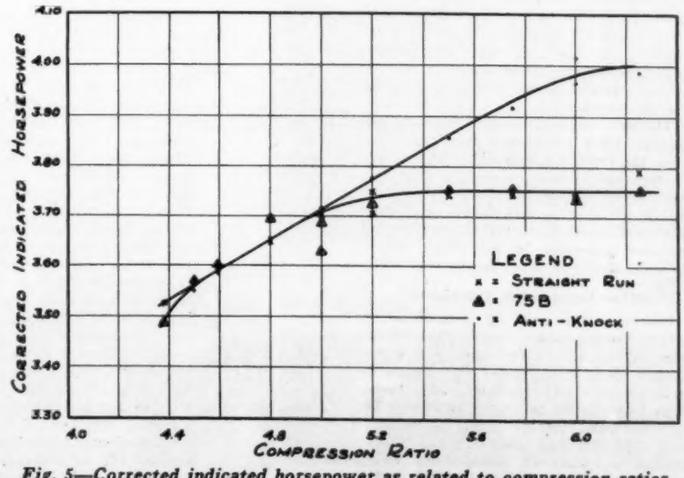


*Fig. 5—Corrected indicated horsepower as related to compression ratios for fuels of different octane numbers*

# Geophysical Prospecting Activity in All Areas Indicates Need for Additional Oil Reserves

By L. G. E. BIGNELL
Petroleum Engineering Editor

It has been estimated by an executive of one of the major oil companies doing business in the Mid-Continent area that approximately $7,000,000 was spent during 1933 for geophysical field parties in Texas, Oklahoma, and Kansas alone. The money was divided approximately $1,500,000 for seismograph work in Kansas and Oklahoma, and $5,500,000 for seismograph and other kinds of geophysical work in Texas. More than 20 companies had field parties out at one time or another in Oklahoma and Kansas, and over 25 companies were similarly active in Texas. It is very difficult to estimate how many field parties were actually engaged during any one month in these three states but it seems safe to assume that from 15 to 20 parties were busy in Kansas and Oklahoma and over 25 groups in Texas monthly.

This intensive search for buried structures that may carry oil and gas in commercial quantities still continues and it has been estimated that about 60 parties are now in the field divided approximately as follows:

| State— | No. of parties |
|---|---|
| Texas and Louisiana | 26 |
| Oklahoma | 18 |
| Kansas | 12 |
| Colorado | 1 |
| Nebraska | 1 |
| California | 2 |

Other parties are engaged in geophysical work in Pennsylvania endeavoring to find structures containing either gas or oil, and in Michigan there is active search for oil field structures by geophysical methods.

This work has been going on for the past three or four years with much more intensity than most persons interested in the petroleum industry realize. It is reported by Dr. Donald C. Barton that the first Schmidt-Lloyd variometer (a type of magnetometer) was imported into this country in March, 1924. C. A. Heiland reports that there were only two modern magnetometers used in the United States during 1924, and there were not more than five in use in 1925, but in 1926 about 60 magnetometers were employed. The use of the magnetometer really marks the beginning of geophysical exploratory work in this country by the oil industry.

The torsion balance and seismograph became more commonly used in 1926 after the field work suitable for magnetometers had been completed. Magnetometers played an important part in outlining trend of structures and when properly used in the field and the results interpreted correctly in the office served the geologists and departments very well.

### Other Instruments Introduced

Following the work of magnetometer parties in all areas during the period from 1925 to 1928 many millions of acres of land were leased under the old short term or five-year contracts. As these short leases began to expire in 1930-1933 the companies had the choice of drilling wells or forfeiting their rights. Many millions of acres of leased land were turned back to the owners in 1930, 1931 and 1932.

With the introduction of the seismograph and a better understanding of its possibilities geologists for the major companies decided that field work with this instrument offered better opportunities for securing preferred acreage over mapped structures than other methods. The use of the seismograph started in 1926 and increased in application through each succeeding year and is still in high favor with most geophysicists.

As the machines have been applied to oil field work many improvements and refinements have been introduced by the manufacturers. Field and office men have become better acquainted with the details of their particular part of this work and it has been found that the reflection type of seismograph is well suited to all needs and it is being extensively used. Several companies specializing in this work have been organized and they have ever increasing numbers of parties in the field doing both reconnaissance and detailed mapping areas. One company that had two field parties active in January, 1933, report 10 parties busy in January, 1934.

In the reconnaissance work it is customary to set shots about 1 mile apart and in this way one party can cover approximately four townships per month at a cost of approximately $7,000. If this preliminary survey indicates that any portion of this area is favorable it is then customary to work the particular spot more intensively setting shots one-quarter of a mile apart or even closer if local conditions indicate it is necessary.

### Seismography Explained

At this point it might be well to outline for the reader something about the operations and principles of the seismograph. Earthquakes have attracted attention and consideration from the earliest times and have caused men to speculate on their origin and general characteristics. As knowledge on this subject was accumulated it was learned that elastic waves traveled through the earth's crust. Recording the time required for passage of these waves from point of origin to one or more instruments established relative velocities of wave travel.

The first step towards development of the seismic method of surveying has been credited to Mallet who demonstrated in 1851 that the velocity of propagation of elastic waves varies in different rocks, and also in different directions in the same rock. Out of this knowledge has been developed the science of seismography as applied to exploration for hidden structures in the oil provinces in all parts of the world.

The seismograph party set up their recording instruments and connect to it, by means of surface wires, any number of geophones that are buried in the earth at various places around the recorder. Holes have been prepared at points in the vicinity of the seismograph that are charged with dynamite. When these charges of explosive are set off waves move through the earth's crust and are reflected back to the surface and picked up by the geophones and transmitted to the seismograph where they are recorded.

From field experience the geophysicist has found that the "reflection" method of seismography is best suited to his needs. This method is based upon the time and velocity required to reflect the wave from the key bed to the surface. The velocity of travel of the elastic wave through each type of formation is known fairly accurately. With this information at hand it is possible to interpret the records made by the seismograph and translate the values of time and velocity into depth of feet to the key beds.

In Oklahoma and in parts of Kansas it has been found that the Viola lime makes an excellent bed for reflection. The wave set up by the explosion of the charge of dynamite travels downward through all the overlaying layers and strikes the upper portion of the Viola and then starts to travel upward again. The path of this wave takes the general form of a "V," the place of the shot being the top of one arm of the "V" and the geophone at the top of the other arm. A somewhat similar method of depth-sounding has been adapted to the measuring of ocean depths.

A great deal more might be written about the details of geophysics as applied to prospecting for underground structures but it is hoped that the above brief outline will serve to give the reader some idea of the relationship of seismography to oil field work.

The oil man is much more concerned with the results obtained by this geophysical work than in details of how it is done. Obviously it would be very difficult to secure detailed reports upon location and size of structures outlined. It is upon such a report that the land man bases his decision to buy or not to buy acreage.

It is estimated that within the past

(Continued on Page 52)

# Annual Meeting of Petroleum Division A.I.M.E. New York City Feb. 20-22

Two excellent papers are scheduled for the engineering research session on Tuesday. Wednesday will be devoted not to the usual production symposium, but to a new type of symposium along new and more informational, statistical lines under the direction of Frank Herald. Thursday Earl Oliver has organized a round table on the general subject of stabilization in its engineering and legal phases.

**Tuesday, February 20**

9:45 A.M. Engineering Research; Economics. K. B. Nowels, chairman; H. C. Fowler, vice chairman.

Comparative Resistance of Certain Commercial Ferrous Materials to Corrosion by Gaseous Hydrogen Sulphide (a laboratory study at ordinary temperatures). By John M. Devine, C. J. Wilhelm and Ludwig Schmidt. (T.P. 531.) This paper will be presented by R. A. Cottell, chief engineer, Petroleum and Natural Gas Division. U. S. Bureau of Mines.

Tanker Rates and Canal Tolls as Factors Determining Markets of Foreign Oils. By V. R. Garfias.

The Normal and Basic Prices of Petroleum. By Norman D. Fitzgerald.

2 to 4 P.M. Aerial Transportation. Scott Turner, chairman; W. E. Wrather, vice chairman.

Use of Airplanes in Mining and Petroleum Operations. By Hugh M. Wolflin.

**Wednesday, February 21**

9:45 A.M. Domestic Production Review. Frank A. Herald, chairman; W. B. Heroy, vice chairman.

Domestic Production Reports.

Foreign Production Review. V. R. Garfias, chairman; J. Terry Duce, vice chairman.

Foreign Production Reports.

**Thursday, February 22**

9:45 A.M. Petroleum Economics. C. B. Mapes, chairman; J. E. Pogue, vice chairman.

A Function of Economics in the Administration of Oil Companies and Properties. By Paul Wagner.

An Aspect of the Arbitrary Restraint of Production. By John D. Gill.

Consumption of Gasoline in Foreign Countries. By Albert J. McIntosh.

Analysis of the Changing Seasonal in Gasoline Consumption. By Joseph E. Pogue. (M.&M.)

The Economic Effects of the Petroleum Code. By H. J. Struth.

10:00 A.M. Stabilization Committee (Executive Session). Present engineering concepts on four subjects will be summarized briefly by the men named: (1) Balancing Supply With Demand, Messrs. Swensrud, Pogue, and Farish; (2) Efficient Utilization of Reservoir Energy, Dr. J. B. Umpleby; (3) A Practical Standard of Ownership Rights, Messrs. Hardwicke, Wilde, and Wrather; (4) Ownership Control in Local Pools, general discussion.

Warner Clark will present briefly the California situation on each subject. Others present will be called upon for round table discussion. It is proposed that at a later date each of these concepts will be analyzed, under the direction of Deans Pound and Bates and their Harvard and Michigan associates, for the tests: Is it mechanically possible; economically advisable; politically wise; legally sound?

2:00 P.M. This will be devoted to addresses by Deans Henry M. Bates of Michigan Law School and Roscoe Pound of Harvard Law School, with open forum discussion on subjects presented by them.

7:00 P.M. Informal Petroleum Division Dinner at Commodore Hotel. Nathan R. Margold, Solicitor of the Interior Department and Chairman of the Petroleum Administrative Board, will discuss the result of the Federal Oil Administration program to date and the fundamental principles of the Federal Administration's policy. General discussion will follow.

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# NEWS FROM FOREIGN LANDS

## U. S. S. R.

Although Russian production in December showed a material decline from the November figure, the total was greater than December, 1932. The December figure of 12,591,600 bbls. brought a total production of 150,080,000 bbls. for 1933 which was slightly greater than the 14,962,500 bbls. for 1932.

Expressed in barrels daily the Russian crude oil production was 411,170 bbls. in 1933 which compares with 408,000 bbls. in 1932. In December, 1933, the daily average production was 406,000 bbls., a large increase over the 327,000-bbl. average in December, 1932, but less than the 448,000-bbl. average for November, 1933. In October, Russian crude oil production averaged 470,000 bbls. and in September 477,900 bbls.

The record on crude oil production in Russia was much better the last half of 1933 than the first half. Starting in 1932, the production started to decline and this decline continued over the first part of 1933 and it appeared for a time that production for the year would drop below the 1930 total which was 135,165,000 bbls. The peak in Russian crude oil production was in 1931 when it totaled 162,842,000 bbls. Field activity increased the latter part of 1933 and this was reflected in greater output. The production was aided by the drilling of several wells of the gusher type in the Lak-Batan district of Baku.

Largely due to the drilling of these wells with a large initial production, the Azneft Trust, the largest of the U.S.S.R. operating units, was able to show a substantial gain in production over 1932. It also ranked highest among the production trusts in percentage of plan with a record of 106.4. At the start of the year each operating trust under the U.S.S.R. is given a certain quota which it is expected to fulfill before the end of the year. Some of the trusts as shown in the accompanying table ended the year from 25 to 50 per cent below the quotas. Due to the excess production of the Azneft the record for the entire year was 93 per cent of the quota.

In the crude oil production end, the original quota of these trusts for 1934 under the second five-year plan was 34,510,000 tons, or approximately 660,000 bbls. daily. It is understood this plan was recently revised downward due to operating conditions. However, the government is still planning on a substantial increase in production for 1934 over 1933. Recent estimates have placed this increase at 100,000 bbls. daily.

### Drilling Operations

The significance of the gusher wells in Russia in the later part of 1933 is shown in the accompanying table covering drilling operations. It will be noted that these drilling operations were only 72.8 per cent of the plan at the start of the year despite the fact crude oil production for the year was greater than in 1932. Drilling operations declined in December when compared with November but were greater than in December, 1932. For the year 1933, drilling in Russian fields totaled 838,091 meters, or 2,748,938 feet. This includes deepening of old wells which has been done on extensive scale in at least two Russian pools.

Figured on a basis of 3,000 feet per well and Russian drilling activity in 1933 would be the equivalent of 900 wells. The U.S.S.R. has a definite program which calls for the drilling of more wells in the proven and semiproven areas with a number of wildcat tests in sections where promising geophysical data have been obtained.

### Crude Runs to Stills Less

Compared with 1932, the 1933 operations of refineries in Russia were not on as favorable a basis as the producing operations. Crude runs to stills which averaged 386,000 bbls. daily in 1932 decreased to 355,000 bbls. in 1933. As in the case of crude oil production the only trust which exceeded its plan was the Azneft whose 1933 runs were approximately 5 per cent greater than in 1932. For the entire country the refining industry ran 90 per cent of its plan and 92 per cent of the 1932 total.

The Grozneft Trust is the important refining unit. The trust was expected to increase its refinery operations in 1933 but failed to do so, running only 77.4 per cent of its quota. In December its operations were only 50 per cent of its quota. This trust has two of the largest refineries in Russia with modern equipment installed by American companies. The Maineft Trust increased its plant operations in 1933 approximately 65 per cent over 1932 but its expansion was not great as expected by the oil administration board of Russia. Its December operations due to the failure of new equipment to start operating was only 37 per cent of the plan. The Oil Plants Trust, which is now the third trust of Russia in refinery output ran 133 per cent of its quota in December and for the entire year 96.6 per cent.

The decrease in crude runs to stills was of course reflected in the gasoline output and accounted for the fact that Russian motor fuel was not as important a factor in European markets in 1933 as in 1932 and 1931. The Russian gasoline production in 1933 was approximately 51,000 bbls. daily which compares with 55,000 bbls. in 1932.

The Russian production of refined kerosene increased in 1933 over 1932. As shown in the accompanying table the Russian production of kerosene exceeds the gasoline production. It is an important factor in its export markets.

The U.S.S.R. increased its production of lubricating oils in 1933, according to available information. More of its lubricating oil products were offered in European markets during 1933. The country has a large production of crudes suitable for the manufacture of steam refined stocks and bright stocks and also the overhead oils.

The new pipe line connecting the oil area in the Grozny district—Malgobek, with the town Mozdok, where the new pipe line is connected with the pipe line Grozny-Touapse, the oil export port—was completed recently. The crude from Malgobek is to be refined at Touapse, and the oil products from Malgobek crude will be exported.

It is reported from Maikop that in No. 172 a gusher has been struck at a depth of 1,121 meters. The daily output of the new gusher for the first day was 700 tons oil; the gravity, 0.820, and the content of petrol, 35 per cent. The new well is considered as a test of the subsoil oil richness in the new Chadischinsky oil area in the Maikop district.

**LATEST REPORTS COVERING DRILLING, CRUDE OIL PRODUCTION AND REFINERY OPERATIONS IN RUSSIA**

**Crude Oil Production By Individual Trusts (Data in Metric Tons—1 Ton = 7 Bbls.)**

| Trusts— | December 1933 | Per cent plan | November 1933 | December 1932 | 1933 | Per cent | 1932 | Per cent relation of 1933 to 1932 |
|---|---|---|---|---|---|---|---|---|
| Azneft | 1,399,700 | 82.1 | 1,484,500 | 971,600 | 15,526,600 | 106.4 | 12,181,300 | 125.8 |
| Grosneft | 322,200 | 55.4 | 347,900 | 490,500 | 4,866,700 | 69.5 | 7,709,700 | 63.1 |
| Maineft | 38,100 | 38.5 | 50,200 | 55,200 | 606,100 | 60.6 | 925,100 | 65.6 |
| Embaneft | 13,300 | 51.2 | 14,300 | 17,400 | 194,400 | 84.5 | 247,000 | 78.7 |
| Other trusts | 25,500 | 24.9 | 26,100 | 24,200 | 246,200 | 51.1 | 312,100 | 78.8 |
| Total | 1,798,800 | 71.5 | 1,923,000 | 1,558,900 | 21,440,000 | 92.8 | 21,375,200 | 100.3 |
| **Drilling Operations (Data in Meters)** | | | | | | | | |
| Drilling in proven fields | 45,980 | 40.2 | 59,741 | 30,138 | 569,371 | 77.1 | 505,072 | 112.7 |
| Extension tests in old areas | 9,737 | 67.9 | 13,647 | 6,827 | 149,533 | 76.4 | 107,384 | 139.2 |
| Wildcat tests in new areas | 8,805 | 36.6 | 10,345 | 8,269 | 119,187 | 68.0 | 132,144 | 90.2 |
| Total | 64,522 | 42.2 | 83,733 | 45,234 | 838,091 | 72.8 | 744,600 | 112.6 |
| **Refinery Operations (Data in Metric Tons)** | | | | | | | | |
| CRUDE OIL RUNS TO STILLS— | | | | | | | | |
| Azneft | 1,008,500 | 94.0 | 1,085,600 | 925,600 | 12,359,300 | 105.6 | 11,483,900 | 107.5 |
| Grosneft | 362,200 | 52.9 | 389,000 | 513,000 | 5,562,100 | 68.8 | 8,222,300 | 67.6 |
| Maineft | 14,900 | 37.2 | 19,000 | 17,200 | 252,500 | 70.1 | 154,100 | 164.1 |
| Oil plants | 26,500 | 133.0 | 28,700 | 28,000 | 296,100 | 96.6 | 299,600 | 98.8 |
| Sredazneft | 2,300 | 46.0 | 4,200 | 4,200 | 41,300 | 89.6 | 44,600 | 92.6 |
| Total | 1,421,700 | 77.4 | 1,526,500 | 1,488,800 | 18,511,700 | 90.3 | 20,214,500 | 91.6 |
| GASOLINE PRODUCTION— | | | | | | | | |
| Azneft | 72,500 | 83.5 | 79,500 | 66,100 | 937,000 | 117.5 | 711,300 | 131.7 |
| Grosneft | 92,600 | 50.5 | 113,600 | 141,500 | 1,601,600 | 77.4 | 2,106,400 | 76.0 |
| Maineft | 5,000 | 88.2 | 6,400 | 5,500 | 85,200 | 88.6 | 40,400 | 210.9 |
| Oil plants | 2,300 | 100.0 | 3,100 | 2,000 | 27,100 | 87.1 | 18,300 | 148.1 |
| Sredazneft | 250 | 50.0 | 400 | 400 | 3,550 | 67.0 | 5,000 | 71.0 |
| Total | 172,650 | 69.4 | 202,000 | 215,500 | 2,654,450 | 88.5 | 2,881,400 | 92.1 |
| REFINED KEROSENE— | | | | | | | | |
| Azneft | 187,000 | ..... | 221,400 | 173,200 | 2,562,700 | ..... | 2,016,100 | 127.1 |
| Grosneft | 96,600 | ..... | 95,900 | 115,000 | 1,222,300 | ..... | 1,482,900 | 82.4 |
| Maineft | 2,200 | ..... | 4,400 | 2,500 | 48,200 | ..... | 21,300 | 226.3 |
| Other plants | 850 | ..... | 300 | 1,700 | 24,650 | ..... | 35,300 | 62.8 |
| Sredazneft | 200 | ..... | 700 | 500 | 4,500 | ..... | 4,700 | 95.7 |
| Total | 286,850 | ..... | 322,700 | 292,900 | 3,862,350 | ..... | 3,560,300 | 108.5 |

## GREAT BRITAIN

The Lobitos Oilfields, Ltd., with headquarters in London, England, is planning the construction of a refinery to be located at Ellesmere Port on the Manchester ship channel. The company, through a subsidiary, La Compania Petrolera Lobitos, Lima, Peru, has production in Peru. It is planned to operate the refinery with crude from the Peruvian properties. The plant will have a capacity of 100,000 tons annually or approximately 2,500 bbls. daily.

The refinery of the Hayton Refineries, Ltd., at Killingholme, near Hull, Yorks, England, is being remodeled so that it can operate with Venezuelan crude oil. The plant, which has a crude oil capacity of 1,000 bbls. daily, also has cracking facilities which are being made adaptable to the Venezuelan crude oil.

## MEXICO

With a total of 3,259,258 bbls. for December, crude oil production in Mexico for 1933 totaled 34,000,390 bbls., according to a final report of the petroleum department of the ministry of national economy. The 1933 production was approximately 500,000 bbls. greater than the total for 1932 and marks a turn in Mexican output after a steady yearly decline since 1929. Based on American dollars, the value of the Mexico crude oil was approximately $29,500,000 in 1933.

The December production was the greatest monthly total during 1933, being 3,259,258 bbls.

The increase in Mexican production reflects increased drilling activity which is expected to continue through 1934. The past year has brought important extensions in old fields with several important wildcat wells now drilling.

## GERMANY

The Deutsche Vacuum Oel A.G., German subsidiary of the Socony-Vacuum Corp., has acquired the entire share capital of 200,000 rm. of the "Ebag," or Erdol-Bergau A.G. (Petroleum Mining Co.), which owns concessions in various parts of the district of Hanover, with producing wells. German Vacuum Oil owns two refineries in which German oil is prepared for the market.

## CHILE

The proposal which has been under consideration for some time in Chile to liberalize the laws to allow private exploitation of new fields assumed definite form last week when a bill was presented in congress for modification of an act which has been in effect since 1926. This 1926 act in effect reserved to the state the right of developing producing properties.

## IRAQ

It is reported that in the first operations of Mosul Oil Fields, Ltd., the holding company of the B.O.D. Co., Ltd., three wells have been struck on the company's concession on the west bank of the River Tigris, each well flowing under its own pressure.

## RUMANIA

The production of crude oil in the Rumanian oil fields during December, according to the current issue of the Moniteur du Petrole Roumain, was in the neighborhood of 650,000 tons.

If every refiner operated Dubbs cracking units, there wouldn't be so much distress gasoline

Nor so many knocking engines

Refiners would be better off—and so would marketers

And motorists

Universal Oil Products Co
Chicago, Illinois

Dubbs Cracking Process
Owner and Licensor

# THE OIL AND GAS JOURNAL

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JOHN M. EGAN, General Manager
JAMES McINTYRE, Editor
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W. T. ANDERSON, Associate Editor
C. O. WILLSON, Refinery Editor

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## The Decision in Texas

The decision in Texas clears the way for a final adjudication.

The majority decision of the three-judge Federal court upholds the state law which is the basis of regulation. Every attempt to have the state conservation policy upset has failed.

If the state authorities wish to enforce the regulations they have the power to do so. There are enough laws on the statute books of the state, as the Texas Petroleum Council has pointed out, to check every violator if there is any determination to use them.

The majority decision puts it squarely up to the state officials to enforce the law declared to be valid.

Unfortunately, the record until the Federal influence was invoked did not create much confidence. More recently there have been evidences of more vigorous effort but the waiting for this decision has been a handicap.

The opinion of the district judge (who also dissented from the majority decision upholding the state law), questioning the constitutionality of the oil code established under the National Recovery Act, may be used by opponents of the regulations as a further pretext for continued defiance of state enforcement but only for so long as the state authorities permit it.

As to the single judge pronouncement upon the Federal authority under the code the government, it is reported, will appeal immediately.

Meanwhile the oil tax provision in the revenue act now before Congress, when passed, as seems certain, will give the Federal government all the power needed to unearth violators.

The work of the Federal administration and the Planning and Coordination Committee will go on and the state authorities in Texas will be expected to co-operate as pledged, the more so in view of the majority court decision upholding the state regulations.

The industry is not going to be plunged into chaos while waiting for the constitutional issues to be determined. The government cannot stand still pending a supreme court decision. The recovery program will proceed with whatever means are available.

The immediate responsibility is upon the state authorities in Texas to enforce the law upheld by the court.

## The Price Cutter's Plea

What is there in the gasoline price cutter's plea that he should be allowed to sell at half a cent less because his costs are lower?

Less overhead, some may say. Then, if that is the answer we should scrap all the advantages of co-operation and mass production and go back to one man stands, only the resulting higher costs would soon wipe out all the savings in overhead and then some.

Some may suggest less cost in operation which means, of course, cutting out service to the consuming public and cutting the number of employes, neither of which can appeal to the public interested in getting something for nothing and in increasing employment.

Administrator Ickes cannot very well be asked to give the price cutter a half cent differential to get business away from those who employ more labor and give the public greater service.

The question then comes down to cost of the gasoline sold. The oil administration has figured out a proper relationship between the cost of crude oil and the price of gasoline. If the price cutter offers his for a half cent less how is he able to do it?

The only way he can do it is by getting his supply at a lower cost which must therefore be below the proper relationship. He can only get his material at lower cost through loss to the refiner or producer.

Any fair study of the costs of these dealers must take into account the profit position of the refiner who sold them the gasoline and of the producer who furnished the crude to the refiner.

Due to unsettled conditions in the oil business it has often happened that independent jobbers have been able to buy gasoline on a tank car basis out of line with the cost of refining and of crude production. The low prices to the jobbers were absorbed by losses on the part of the refiner and producer who furnished the product.

Before granting any differential to price cutters the government should see that the refiner who sold the gasoline and the producer who supplied the crude made an adequate profit and were not operating with excess oil of the hot variety.

The integrated companies are engaged in all branches of the business and their retail prices must of necessity reflect cost of production in all phases of their operations.

Volume of business is sometimes offered as a plea for a price differential. But if the independent is allowed to undersell his competitors and they are prohibited from meeting his price competition he can increase his volume of business per station or unit of distribution. As his gallonage grows his costs per gallon are reduced.

Therefore it is volume and not any specially advantageous operating position that gives him the lower costs. This applies to all companies. If lower cost through volume is the objective, the abolition of 50 or 75 per cent of the stations and of all the extra service motorists have become accustomed to regard as necessities might attain it. But how about the public and how about the resulting unemployment in the marketing end where the bulk of employment is, and what about the dissipation of capital investments?

Another price cutters' plea for a differential is that they escape the cost of advertising. Where would the automotive and gasoline industries be today if it had not been for advertising? The work of the automobile industry has not been so much to sell a piece of mechanism as to create the desire of millions for the pleasure of using it.

Advertising created the "call of the open road," the demand for speed, for comfort, which in turn made low production cost possible. The oil industry completed the picture by giving the car owner quality products wherever he needed them and some places where he did not need them.

Advertising has sold every car improvement, has created a market for every improvement in motor fuel and has made the car owner lubrication-conscious. It has been the same in every industry and business. We should never have had the low costs from volume production had it not been for advertising creating the demand.

But the price cutter would take advantage of the enterprise of others in advertising just as he turns the losses of the refiner and producer into his own profit.

He is a pretty object for governmental favor in the way of a differential.

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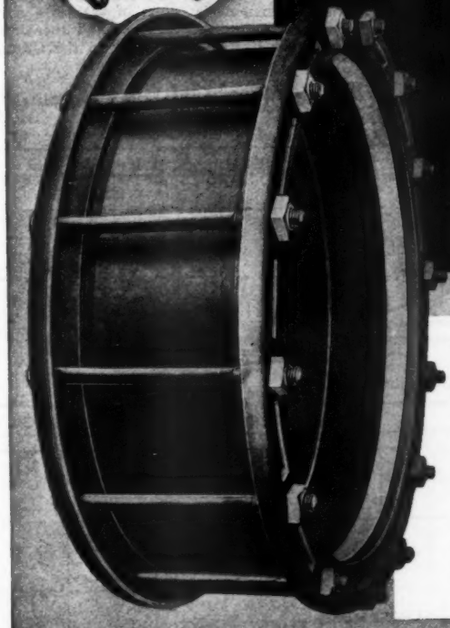

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DRESSER COUPLINGS DOMINATE

# Group 3 Refinery Gasoline Market in the Dumps But Naturals Continue Their Upward Swing

By T. F. SMILEY

The refinery gasoline market in Oklahoma (Group 3) territory has lost for the time being the sprightly air which characterized it for several weeks and its reversal of form amounted to softness, though changes in quotations were inconsequential. Somewhat paradoxically the natural gasoline market continued its upswing, with prices higher and demand active. Throughout the rest of the list of petroleum products the week brought no changes of import.

The abruptness and unanimity with which the buying of refinery gasoline slackened offer something for the psychologists to think about. After sinking to lower and lower levels for months the Group 3 quotations stiffened at the close of January. The first of the present month witnessed a sudden and vigorous upturn, ascribed largely to apparent improvement in the East Texas situation and to a belief throughout the trade that controversies in connection with the pooling and marketing agreements were by way of being resolved. The buoyant mood continued into the next week.

Then on Tuesday, February 6, as though at a prearranged signal, buyers withdrew as simultaneously as they had appeared. There was nothing in the news to explain their action. So far as could be seen each one acted independently of all the others. No one of them seemed to know or care what course the rest were pursuing. But if they had held an executive session and decided by ballot to drop out of the market at a certain hour they scarcely could have moved more completely in concert.

### Quotations Held Up Well

Sales managers whose offers of material the day before had been received with genial interest now encountered indifference. The change was startling. Notwithstanding lack of buying support, quotations yielded little ground. Low-octane material underwent a fractional recession, but other grades were holding up.

East Texas again was pointed to as a disconcerting market factor. Although it was believed the sources of hot oil were being dried up, it was declared nevertheless that too much gasoline was coming out of that area.

Opinion was divided early this week as to the probable market effect of the opinion handed down by the three-judge court in the cases of the Amazon Petroleum Corp. and the Panama Refining Co. Some, and they probably were a majority, expressed the view that the decision, though questioning the validity of the national petroleum code as it applies to intrastate business, clarified the situation as it relates to the powers of the State Railroad Commission in Texas. It was pointed out that evidence gathered by Federal agents against hot oil operators in East Texas could be turned over to the state authorities for use in prosecuting violators of the code. As to the powers of the Federal Government in dealing with offenders, that question would be settled through the appeal to the Supreme Court.

Some manifested marked disappointment over the district court's decision and expressed lack of faith in the State's willingness to enforce its own regulatory measures. These looked for a depressed gasoline market.

Observers whose judgment commonly is accepted as sound said they saw nothing in the court's decision that was likely to result in any pronounced market reaction. It had not essentially changed the situation, they said.

### Waiting for End of Guesswork

The ultimate disposition of the proposed pooling and marketing agreements was still a subject of speculation this week and it was felt that regardless of other factors, the fullest activity of which the market in petroleum products is capable would not be attained until definite action had been taken on these agreements.

During the recent buying movement most jobbers are reported to have stored enough gasoline to protect themselves from the likelihood of necessitous buying for a while, and they evince no disposition to do any further large-scale purchasing until guesswork concerning governmental action has been removed.

The natural gasolines, which joined in the rise which began two weeks ago, refused to linger by the way and, leaving the refinery material to its own devices, continued their upward march. Both domestic and export buying were brisk and quotations advanced an eighth cent or more throughout almost all grades. It was reported this week that orders for three cargo shipments, two for export and one coastwise, were in prospect and that failure to get them on the books was the result of a feeling of uncertainty concerning the course natural gasoline prices may take in the next few weeks.

Wax and kerosene were strong points in the list of refinery products this week. Cylinder stocks were firm. Neutrals were steady. Bright stocks were satisfactory, though perhaps not quite so firm as last week. Heating oils were feeling the effect of the price cutting in the Chicago district and there were reports of price shading in the Group 3 area.

## Refined Oil Market Barometer

The market in petroleum products was caught in something like a calm this week, an unusually small number of changes in quotations being recorded and relatively little ground being either lost or gained in point of strength anywhere in the list. There was a disposition in some quarters to stay out of the market pending a clearer understanding of what results may emerge from the Federal court decision in Texas.

**Mid-Continent**—Refinery gasolines soft. Naturals strong. Firmness in most other products.

**East Coast**—Gasoline consumption slowed up by cold weather, which is stimulating demand for fuels. Cylinder stocks particularly strong.

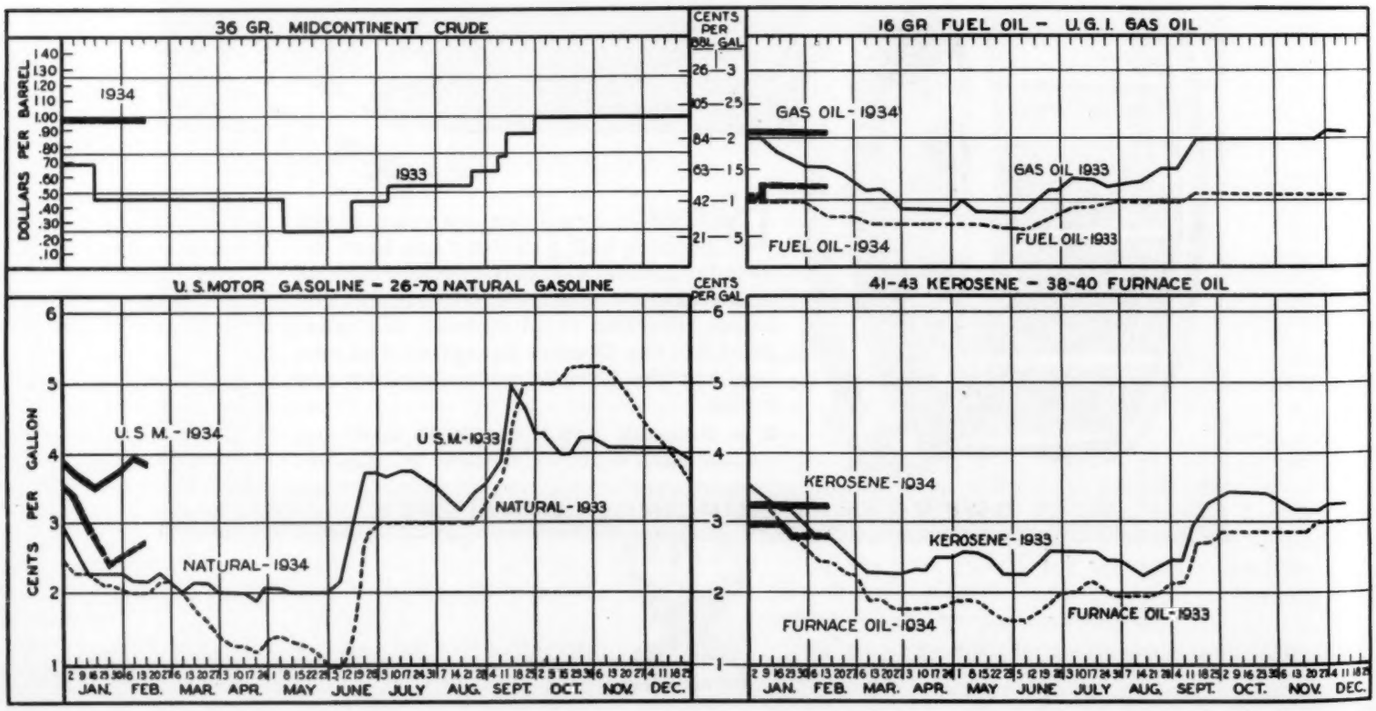
**Gulf Coast**—Gasoline prices firm, but material slightly easier. Kerosenes tight. Fuels firm. Lubricants steady. Export inquiries more active.

**Pennsylvania**—Cold weather throughout East strengthening kerosene and fuel markets. Naphthas softer.

**California**—Retail gasoline market weak. Other products show little change.

**Chicago**—Tank car gasoline steadier. Wax and lubricants strong. Naphthas up. Heating oils brisk.

**Representative Mid-Continent Quotations on Crude Oil and Refined Products Basis Oklahoma (Group 3)**


36 GR. MIDCONTINENT CRUDE
DOLLARS PER BARREL
1934
1933
CENTS PER GAL
16 GR FUEL OIL – U.G.I. GAS OIL
GAS OIL - 1934
GAS OIL 1933
FUEL OIL - 1934
FUEL OIL - 1933
U.S. MOTOR GASOLINE – 26-70 NATURAL GASOLINE
CENTS PER GALLON
U.S.M. - 1934
U.S.M. - 1933
NATURAL - 1933
NATURAL - 1934
41-43 KEROSENE – 38-40 FURNACE OIL
KEROSENE - 1934
KEROSENE - 1933
FURNACE OIL - 1934
FURNACE OIL - 1933
JAN. FEB. MAR. APR. MAY JUNE JULY AUG. SEPT. OCT. NOV. DEC.

# Cold Weather Slows Up Motor Fuel Movement in East, Causing Heavy Tank Car Market

By C. O. WILLSON
New York Bureau, The Oil and Gas Journal

NEW YORK, Feb. 12.—An extended period of cold weather climaxed with the lowest temperatures on record here has greatly reduced the movement of motor fuels in this territory and has been an unfavorable development from the standpoint of tank car markets. While prices held over the last week, fear is expressed that accumulations at local refineries and bulk terminals will result in concessions. Unless there is relief in the immediate future conditions point to a substantial reduction in gasoline demand for February when compared to the same month of previous years a development which not only threatens the stability of current markets but which also means additional curtailment in refinery operations if a favorable statistical situation is to be obtained for the spring and summer markets.

Despite this situation the Standard Oil Co. of New York and other major distributors in this territory advanced gasoline tank wagon and service station prices one-half cent on February 9. This advance in effect offset the decline in January and applies to New York and the New England states. It is interpreted locally as an indication of confidence that the program at Washington for the stabilization of marketing will be successfully applied. In the meanwhile complaints are heard of price cutting in tank car, tank wagon and service station prices although this situation is not as critical as it was in January.

The extreme cold weather has of course aided the consumer demand for all grades of fuels. The tank wagon delivery facilities of several of the larger distributors have been operating at capacity in an effort to supply requirements. Supplies of all grades of furnace oils and the heavier fuels appeared adequate and those in touch with the market were of the opinion that tank car prices would remain at present levels. It is pointed out in this connection that the main fuel oil consuming season is nearing an end and the attitude of many sellers will be to reduce their storage.

Other products remain unchanged. The market on all grades of cylinder stocks remains particularly strong. The cold weather has brought an exceptional demand for low cold test bright stocks of the Pennsylvania grade. It is said that some of the larger refiners are short of this material and smaller manufacturers who have tank car material to offer have no difficulty in disposing of their output if it comes within the low or medium cold test classifications. The Mid-Continent stocks also are in demand. Bulk prices on low cold test bright stocks (Pennsylvania grade) range from 29 to 34 cents per gallon and this wide disparity in quotations applies also to the market in barrels for export movement. An unusual situation exists in that the market for 200-3 Pennsylvania neutral oil is bringing practically the same price as the No. 8 color bright stock. This price applies only to the low cold test neutrals.

### Refinery Situation

The following table summarizes the East Coast refinery situation for December, 1933 and 1932, based on Bureau of Mines reports which were released in the past week:

**REFINERY OUTPUT (Bbls.)**

| | Dec., 1933 | Dec., 1932 |
|---|---|---|
| Crude oil runs to stills | 13,742,000 | 13,544,000 |
| Gasoline | 5,689,000 | 6,170,000 |
| Kerosene | 795,000 | 908,000 |
| Gas oil and distillate | 1,414,000 | 1,186,000 |
| Residual fuel oils | 3,679,000 | 4,174,000 |
| Lubricants | 734,000 | 523,000 |
| Wax (lbs.) | 19,600,000 | 16,800,000 |
| Coke (tons) | 13,800 | 15,300 |

**STOCKS (END OF MONTH)**

| | Dec., 1933 | Dec., 1932 |
|---|---|---|
| Gasoline | 15,309,000 | 12,613,000 |
| Kerosene | 1,256,000 | 973,000 |
| Gas oil and distillate | 3,842,000 | 3,377,000 |
| Residual fuel oils | 3,599,000 | 4,986,000 |
| Lubricants | 2,147,000 | 4,986,000 |
| Wax (lbs.) | 18,489,000 | 38,756,000 |
| Coke (tons) | 27,000,000 | 29,300,000 |

This table shows that East Coast refineries handled more crude oil in the last month of the year despite curtailment programs than they did in the same months in 1932. Due to a reduction in gasoline yields from crude oil the gasoline production in December, 1933, was not as great as in the same month of the previous year. Kerosene output also was less as was that of the residual fuel oil. The output of gas oil and distillate, lubricants and wax substantially increased.

In regard to inventories, stocks of gasoline, kerosene, gas oil and distillate are greater than a year ago. The stocks of residual fuels oils, lubricants and wax on the other hand at the close of the year were much lower than on the same date in 1932. It is worthy of note in this connection that these products occupy an exceptionally strong position in current markets. The stocks of wax on December 31 were less than 50 per cent of the total for the year previous. The stocks of these products for the entire country are at the lowest point in several years and prices are strong in all refining areas. The reduction in stocks of lubricants was also more than 50 per cent. Refiners who a year ago were endeavoring to find places to liquidate their excessive inventories of lubricants now only have working stocks or less.

While not an important product in total refinery revenue refiners in this territory have also enjoyed a more favorable market for petroleum coke in recent months. A few years ago it was almost impossible to find a satisfactory market for petroleum coke. Now the product is handled by several New York coal dealers and in one case at least a major retailer has built up a large business with consumers which includes home owners as well as owners of hotels, office buildings and other large buildings.

The trade here is awaiting final developments at Washington before taking any action in regard to gasoline contracts. It is assumed that the Government's decision in regard to contract forms will be known within a few days. The ruling by Secretary Ickes, oil administrator, last week in regard to the maximum differential spread of 2 cents between service station and tank wagon prices has been received by the trade with little comment. The order is interpreted to apply only to new contracts and the old contracts with commercial consumer accounts continue in effect. It is expected that new government regulations will include a fixed schedule of discounts for commercial accounts business. It is known that these large commercial accounts are aware that higher gasoline prices are in prospect in any new contracts and new type agreements have been suggested with the hope that the contracts would continue in effect over a period of a year regardless of any ruling by the Government administration board.

### Prices

Following the advance of one-half cent in gasoline tank wagon and service station prices on Friday there were reports that the tank car prices in New York harbor and all East Coast terminal points would be advanced the same amount this week. At this writing this development which would mean a return to quotations in effect the latter part of 1933 has not materialized. At the time the tank car prices were reduced one-half cent in January the Standard Oil Co. of New Jersey reduced its tank wagon and service station prices 1.2 cents in its marketing territory which extends along the coast from New Jersey to South Carolina. The company continues to have many disturbed marketing points in this territory with Washington, D. C., outstanding. It is not be-

(Continued on Page 52)

## American Petroleum Institute Weekly Refinery Statistics

Figures below reported for week by American Petroleum Institute. (1) Per cent refinery capacity represented. (2) Daily average crude runs to stills. (3) Total motor fuel stocks. (4) Gas oil and fuel oil stocks. All figures in 42-gallon barrels.

**Week Ending February 10, 1934, Compared to Week Ago**

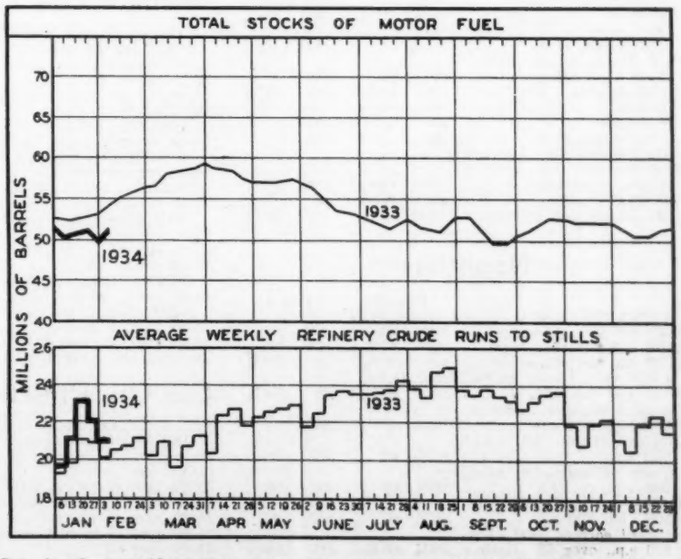
| | (1) | (2) | (3) | (4) |
|---|---|---|---|---|
| East Coast | 100.0 | 464,000 | 14,785,000 | 5,334,000 |
| Appalachian | 92.6 | 82,000 | 1,941,000 | 913,000 |
| Ind., Ill., Ky. | 97.3 | 303,000 | 7,794,000 | 4,031,000 |
| Okla., Kans., Mo. | 82.1 | 194,000 | 5,623,000 | 3,329,000 |
| Inland Texas | 60.2 | 85,000 | 1,198,000 | 1,628,000 |
| Texas Gulf | 98.1 | 417,000 | 5,182,000 | 5,215,000 |
| La. Gulf | 100.0 | 110,000 | 1,855,000 | 1,848,000 |
| N. La. and Ark. | 92.6 | 50,000 | 199,000 | 549,000 |
| Rocky Mtn. | 78.8 | 26,000 | 1,003,000 | 729,000 |
| California | 96.9 | 421,000 | 12,008,000 | 89,644,000 |
| Total U. S. | 92.4 | 2,152,000 | 51,588,000 | 113,220,000 |

No figures available due to Lincoln's Birthday, a holiday.

**Week Ending February 10, 1934, Compared to Year Ago**

| | (1) | (2) | (3) | (4) |
|---|---|---|---|---|
| East Coast | 99.1 | 439,000 | 14,096,000 | 7,495,000 |
| Appalachian | 95.0 | 74,000 | 1,947,000 | 898,000 |
| Ind., Ill., Ky. | 97.5 | 275,000 | 7,529,000 | 3,164,000 |
| Okla., Kans., Mo. | 84.9 | 193,000 | 4,978,000 | 2,982,000 |
| Inland Texas | 56.4 | 75,000 | 1,541,000 | 2,154,000 |
| Texas Gulf | 97.7 | 434,000 | 6,457,000 | 6,674,000 |
| La. Gulf | 97.3 | 83,000 | 1,421,000 | 2,271,000 |
| N. La. and Ark. | 88.5 | 53,000 | 292,000 | 571,000 |
| Rocky Mtn. | 90.8 | 36,000 | 1,362,000 | 543,000 |
| California | 94.6 | 383,000 | 15,419,000 | 99,064,000 |
| Total U. S. | 91.6 | 2,045,000 | 55,042,000 | 125,816,000 |

No figures available due to Lincoln's Birthday, a holiday.




Data based on weekly reports of American Petroleum Institute. Figures for week just ended not shown in graph but are included in accompanying table.

# REFINERY AND CRUDE PRICES

Quotations on refined products are for interstate or export movement except as otherwise noted

The following quotations are exclusive of the Federal excise taxes of 1 cent a gallon on gasoline and 4 cents on lubricating oils.

## Refinery Gasolines

| | Feb. 13 | | Feb. 6 | |
|---|---|---|---|---|
| **OKLAHOMA (Group 3)—** | | | | |
| U. S. Motor grades: | | | | |
| Below 60 octane | .03⅞ | .04⅛ | .04 | .04⅛ |
| 60-64.9 octane | .04¼ | .04⅞ | .04¾ | .04⅞ |
| 65-70 octane | .05 | .05⅛ | .05 | .05⅛ |
| 60-62 400 grades: | | | | |
| Below 60 octane | .04⅛ | .04¼ | .04⅛ | .04¼ |
| 60-64.9 octane | .05 | .05⅛ | .05 | .05⅛ |
| 65-70 octane | .05¼ | .05⅜ | .05¼ | .05⅜ |
| 64-66 375 | .04½ | .04⅝ | .04½ | .04⅝ |
| 68-70 360 | .05 | .05⅛ | .05 | .05⅛ |
| **NORTH TEXAS—** | | | | |
| U. S. Motor grades: | | | | |
| Below 60 octane | .03⅞ | .04 | .03⅞ | .04 |
| 60-64.9 octane | .04⅝ | .04⅞ | .04⅝ | .04⅞ |
| 65-70 octane | .04⅞ | .05⅛ | .04⅞ | .05⅛ |
| 60-62 400 | .04 | .04⅛ | .04 | .04⅛ |
| 64-66 375 | .04⅜ | .04½ | .04⅜ | .04½ |
| 68-70 360 | .04⅞ | .05 | .04⅞ | .05 |
| **NORTH LOUISIANA (Ark., No. La. & Miss. del.)—** | | | | |
| U. S. Motor grades: | | | | |
| Below 60 octane | .04⅜ | | .04⅜ | |
| 60-64.9 octane | .05⅜ | | .05⅜ | |
| 65-70 octane | .05⅝ | | .05⅝ | |
| 60-62 400 | .04½ | | .04½ | |
| **ARKANSAS (Ark., No. La. & Miss. del.)—** | | | | |
| U. S. Motor grades: | | | | |
| Below 60 octane | .04⅜ | | .04⅜ | |
| 60-64.9 octane | .05⅜ | | .05⅜ | |
| 65-70 octane | .05⅝ | | .05⅝ | |
| **CHICAGO (based on Oklahoma Group 3)—** | | | | |
| U. S. Motor grades: | | | | |
| Below 60 octane | .04 | .04⅛ | .04 | .04⅛ |
| 60-64.9 octane | .04⅞ | .05 | .04⅞ | .05 |
| 65-70 octane | .05⅛ | .05⅜ | .05⅛ | .05⅜ |
| 60-62 400 | .04⅛ | .04¼ | .04⅛ | .04¼ |
| 64-66 375 | .04¾ | .05 | .04¾ | .05 |
| 68-70 360 | .05 | .05¼ | .05 | .05¼ |
| Aviation fighting grade | .05⅜ | .05⅝ | .05⅜ | .05⅝ |
| **PENNSYLVANIA (inland refineries)—** | | | | |
| 58-60 U. S. Motor: | | | | |
| Below 60 octane | .05 | .05¼ | .05 | .05¼ |
| 60-64.9 octane | .06⅜ | .06½ | .06⅜ | .06½ |
| 65-70 octane | .06¾ | .07¼ | .06¾ | .07¼ |
| 64-66 375 | .06 | .06⅛ | .06 | .06⅛ |
| 68-70 350 | .06¼ | .06½ | .06¼ | .06½ |
| **CALIFORNIA (domestic movement)—** | | | | |
| 54-58 U. S. Motor | .07 | .08¼ | .07½ | .09 |
| 58-60 400 | .08¼ | .09 | .09 | .10 |
| **EAST COAST—** | | | | |
| U. S. Motor, below 60 octane: | | | | |
| New York | .05½ | | .05½ | |
| Baltimore | .05½ | | .05½ | |
| U. S. Motor, 60-64 octane: | | | | |
| New York (Bayonne) | .05¾ | | .05¾ | |
| Philadelphia | .05¾ | .06 | .05¾ | .06 |
| Boston | .0595 | .06¼ | .0595 | .06¼ |
| Baltimore | .05¾ | | .05¾ | |
| Charleston, S. C. | .05¾ | | .05¾ | |
| U. S. Motor, 65 and above: | | | | |
| New York (Bayonne) | .06 | | .06 | |
| Philadelphia | .06 | .06¼ | .06 | .06¼ |
| Boston | .0620 | .06½ | .06¼ | .06½ |
| Baltimore | .06 | | .06 | |
| Charleston, S. C. | .06 | | .06 | |
| **GULF COAST (domestic)—** | | | | |
| U. S. Motor: | | | | |
| Below 60 octane | .04⅝ | .04¾ | .04⅝ | .04¾ |
| 60-64.9 octane | .05 | .05⅛ | .05 | .05⅛ |
| 65 octane and higher | .05¼ | .05½ | .05¼ | .05½ |

## Naphthas

| | Feb. 13 | | Feb. 6 | |
|---|---|---|---|---|
| **PENNSYLVANIA (inland refineries)—** | | | | |
| 50-52 430-450 (blending) | .04⅞ | .05 | .04⅞ | .05 |
| 52-54 430-450 (blending) | .05 | .05⅛ | .05 | .05⅛ |
| 54-56 430-450 (blending) | .05 | .05⅛ | .05⅛ | .05¼ |
| **CHICAGO (based on Oklahoma Group 3)—** | | | | |
| 50-52 450 (blending) | .04 | .04¼ | .04 | .04¼ |
| Cleaners' naphtha, 56-58 gr., 200 i.b.p.-330 e.p. | .06⅝ | .07 | .06½ | .07 |
| Lacquer diluent, 180 i.b.p.-250 e.p. | .07⅝ | .08 | .07½ | .08 |
| Lacquer diluent, 140 i.b.p.-200 e.p. | .08⅝ | .09 | .08½ | .09 |
| Rubber solvent, 68-70 gr., 100 i.b.p.-300 e.p. | .06¾ | .07 | .06½ | .07 |
| Stoddard solvent, 300 i.b.p.-410 e.p., over 83° flash | .06⅛ | .06½ | .06 | .06½ |
| Pet. thinner, 290-300 i.b.p.-415 e.p., over 83° flash | .06¼ | .06½ | .06¼ | .06½ |
| V.M.&P. naphtha, 56-58 gr., 190-200 i.b.p.-330 e.p. | .06⅝ | .07 | .06½ | .07 |
| Petroleum spirits | .05¾ | .06 | .05½ | .06 |

## Natural Gasolines

| | Feb. 13 | | Feb. 6 | |
|---|---|---|---|---|
| **OKLAHOMA (Group 3)—** | | | | |
| Grade 26-70 | .02¾ | | .02⅝ | .02¾ |
| Grade 18-55 | .03⅜ | .03½ | .03¼ | |
| Low vapor pressure grades: | | | | |
| 15 lb. v.p. (max.) | .03¾ | .04 | .03⅝ | .03¾ |
| 11 lb. v.p. (max.) | .04 | .04¼ | .04¼ | .04½ |
| **NORTH TEXAS—** | | | | |
| Grade 26-70 | .02¾ | | .02⅝ | .02¾ |
| Grade 18-55 | .03⅜ | .03½ | .03¼ | |
| Low vapor pressure grades: | | | | |
| 15 lb. v.p. (max.) | .03¾ | .04 | .03¾ | |
| 11 lb. v.p. (max.) | .04 | .04¼ | .04¼ | .04½ |
| **NORTH LOUISIANA—** | | | | |
| Grade 26-70 | .03⅛ | .03¼ | .03 | .03⅛ |
| **CALIFORNIA—** | | | | |
| 75-85 375 | .06¼ | .07 | .06¼ | .07 |

## Kerosenes

(All kerosenes water white)

| | Feb. 13 | | Feb. 6 | |
|---|---|---|---|---|
| **OKLAHOMA (Group 3)—** | | | | |
| 41-43 | .03¼ | .03½ | .03¼ | .03½ |
| 42-44 | .03½ | .03⅝ | .03½ | .03⅝ |
| **NORTH TEXAS—** | | | | |
| 40-41 | .03½ | .03¼ | .03½ | .03¼ |
| 41-43 | .03¼ | .03⅜ | .03¼ | .03⅜ |
| **NORTH LOUISIANA (Ark., No. La. & Miss. del.)—** | | | | |
| 41-43 | .03¾ | | .03¾ | |
| 42-44 | .04 | | .04 | |
| **ARKANSAS (Ark., No. La. & Miss. del.)—** | | | | |
| 41-43 | .03¾ | | .03¾ | |
| **PENNSYLVANIA (inland refineries)—** | | | | |
| 45 | .04 | .04¼ | .04 | .04¼ |
| 46 | .04¼ | .04½ | .04¼ | .04½ |
| 47 | .04½ | .04¾ | .04½ | .04¾ |
| **CHICAGO (based on Oklahoma Group 3)—** | | | | |
| 41-43 | .03¼ | .03½ | .03¼ | .03½ |
| 42-44 | .03⅜ | .03½ | .03⅜ | .03½ |
| **CALIFORNIA (Pacific Coast consumption)—** | | | | |
| 38-40 high burning test | .04¼ | .04¾ | .04¼ | .04¾ |
| **NEW YORK (Bayonne, N. J.)—** | | | | |
| 41-43 | .05¼ | .05½ | .05¼ | .05½ |
| **GULF COAST (domestic)—** | | | | |
| 41-43 | .04½ | .04⅝ | .04½ | .04⅝ |

## Petroleum Coke

Prices per ton f.o.b. refineries in Chicago area. (Refineries will absorb freight to 80 cents a ton)

| | Feb. 13 | Feb. 6 |
|---|---|---|
| Breeze (screenings) | 5.50 | 5.50 |
| Pile run | 5.50 | 5.50 |
| Direct from still | 6.50 | 6.50 |
| Lump and egg | 8.00 | 8.00 |

## Furnace Oils and Tractor Fuels

(Zero cold test under 190° flash and good odor)

| | Feb. 13 | | Feb. 6 | |
|---|---|---|---|---|
| **OKLAHOMA (Group 3)—** | | | | |
| 32-36 straw | .02⅞ | .03 | .02⅞ | .03 |
| 36-38 straw | .02⅝ | .02⅞ | .02⅝ | .02⅞ |
| 38-40 straw | .02⅞ | .03 | .02⅞ | .03 |
| 39-41 prime | .03 | .03⅛ | .03 | .03⅛ |
| **NORTH TEXAS—** | | | | |
| 38-40 straw | .02¾ | .03 | .02¾ | .03 |
| **NORTH LOUISIANA (Ark., No. La. & Miss. del.)—** | | | | |
| 36-40 furnace oil | .03 | | .03 | |
| **ARKANSAS (Ark., No. La. & Miss. del.)—** | | | | |
| 32-36 furnace oil | .03 | | .03 | |
| **CHICAGO (based on Oklahoma Group 3)—** | | | | |
| 32-36 straw | .03 | .03¼ | .03⅛ | .03¼ |
| 38-40 straw | .03 | .03¼ | .03⅛ | .03¼ |
| 38-40 prime white | .03⅛ | .03⅜ | .03¼ | .03⅜ |
| **PENNSYLVANIA (inland refineries)—** | | | | |
| 40-41 prime white | .03⅞ | | .03⅞ | |
| **NEW YORK (Bayonne, N. J.)—** | | | | |
| 36-40 (No. 1 grade) | .05¼ | .05½ | .05¼ | .05½ |
| 32-36 (No. 2 grade) | .04½ | | .04½ | |
| 21 industrial (No. 4 grade) | .04 | | .04 | |

## Gas Oil, Diesel Oil and Fuel Oil

(Gas oil per gallon; Diesel and fuel oils per barrel)

| | Feb. 13 | | Feb. 6 | |
|---|---|---|---|---|
| **OKLAHOMA (Group 3)—** | | | | |
| 32-36 gas oil cracking stock | .01⅞ | .02⅛ | .01⅞ | .02⅛ |
| U.G.I. gas oil | .02⅛ | | .02⅛ | |
| 32-36, zero to 15 gas oil | .02⅞ | .03 | .02⅞ | .03 |
| 28-30, No. 3 burner oil | 1.05 | 1.10 | 1.05 | 1.10 |
| 28-30, zero to 10 fuel oil | .95 | 1.00 | .95 | 1.00 |
| 26-30, zero to 10 fuel oil | .85 | .95 | .85 | .95 |
| 24-26 fuel oil | .70 | .75 | .70 | .75 |
| 20-22 fuel oil | .57½ | .65 | .57½ | .65 |
| Below 16 fuel oil | .55 | .60 | .55 | .60 |
| **NORTH TEXAS—** | | | | |
| 32-36 gas oil, industrial | .02 | | .02 | |
| 22-26 fuel oil | .57½ | .62½ | .57½ | .62½ |
| Below 20 fuel oil | .47½ | .50 | .47½ | .50 |
| **NORTH LOUISIANA (Ark., No. La. & Miss. del.)—** | | | | |
| 32-36 gas oil, zero | .03 | | .03 | |
| 14-16 fuel oil | .65 | .70 | .65 | .70 |
| **ARKANSAS (Ark., No. La. & Miss. del.)—** | | | | |
| 30-32 gas oil, zero | .02¾ | | .02¾ | |
| 32-36 gas oil | .03 | | .03 | |
| 14-16 fuel oil | .65 | .70 | .65 | .70 |
| **CHICAGO (based on Oklahoma Group 3)—** | | | | |
| 32-36 gas oil, industrial | .01⅞ | .02 | .01⅞ | .02 |
| 28-30 zero to 10, fuel oil | 1.00 | 1.07½ | 1.00 | 1.07½ |
| 26-28 zero to 10, fuel oil | .87½ | .92½ | .87½ | .92½ |
| 22-26 zero to 10, fuel oil | .77½ | .82½ | .77½ | .82½ |
| 18-22 zero to 10, fuel oil | .60 | .65 | .60 | .65 |
| Below 18 fuel oil | .40 | .45 | .40 | .45 |

Note: Fuel oils of more than 40 cold test generally 5 to 15 cents per barrel less in all these areas.

| | | | | |
|---|---|---|---|---|
| **PENNSYLVANIA (inland refineries)—** | | | | |
| 36-40 | .03⅜ | .03½ | .03⅜ | .03½ |
| **CALIFORNIA—** | | | | |
| 30-34 gas oil per bbl. | 1.05 | 1.15 | 1.05 | 1.15 |
| 27 plus Diesel | 1.05 | 1.15 | 1.05 | 1.15 |
| 15-19 bunker (at tidewater) | .60 | .70 | .60 | .70 |
| 15-19 (cargo lots) | .55 | .65 | .55 | .65 |
| 15-19 (tank cars) | .45 | .65 | .45 | .65 |
| **GULF COAST—** | | | | |
| 28-30 gas oil | .03¾ | | .03¾ | |
| 28-30 Diesel (bunkers) | 1.80 | | 1.80 | |
| Bunker C (bulk cargoes) | .92½ | .95 | .92½ | .95 |
| **NEW YORK (Bayonne, N. J.)—** | | | | |
| 28 plus, gas oil | .04 | .04¼ | .04 | .04¼ |
| 28-30 Diesel (lighterage 6½ cents per bbl.) | 1.95 | | 1.95 | |
| 28-30 Diesel (tank cars) | .04½ | | .04½ | |
| *Bunker C (to ocean-going ships in N. Y. harbor) | 1.20 | | 1.20 | |

*Lighterage charge 5 cents per barrel additional.

## Neutral Oils

(Vis. at 100° F. except Pennsylvania, and color N.P.A.)

| | Feb. 13 | | Feb. 6 | |
|---|---|---|---|---|
| **OKLAHOMA (Group 3)—** | | | | |
| Zero to 10 Cold Test: | | | | |
| 150-3 | .07¾ | .08 | .07¾ | .08 |
| 180-3 | .09 | .09¼ | .09 | .09¼ |
| 180-4 | .08¾ | .09 | .08¾ | .09 |
| 200-3 | .09½ | .09¾ | .09½ | .09¾ |
| 200-4 | .09¼ | .09½ | .09¼ | .09½ |
| 240-3 | .11½ | .11¾ | .11½ | .11¾ |
| 240-4 | .11¼ | .11½ | .11¼ | .11½ |
| 280-3 | .12½ | .12¾ | .12½ | .12¾ |
| 280-4 | .12 | .12¼ | .12 | .12¼ |
| 300-3½ | .13¼ | .13½ | .13¼ | .13½ |
| 350-3½ | .14¼ | .14½ | .14¼ | .14½ |
| 400-4 | .15¼ | .15½ | .15¼ | .15½ |
| 500-4½ | .16¼ | .16½ | .16¼ | .16½ |
| 100-2 paraffin oil | .05½ | .05¾ | .05½ | .05¾ |
| 15-30 Cold Test: | | | | |
| 200-3 | .08½ | .08¾ | .08½ | .08¾ |
| 200-4 | .08¼ | .08½ | .08¼ | .08½ |
| 240-3 | .10½ | .10¾ | .10½ | .10¾ |
| 240-4 | .10¼ | .10½ | .10¼ | .10½ |
| 280-3 | .11½ | .11¾ | .11½ | .11¾ |
| 280-4 | .11¼ | .11½ | .11¼ | .11½ |
| **GULF COAST—** | | | | |
| Pale Oils: | | | | |
| 200-3 | .07½ | | .07½ | |
| 300-3 | .08 | .08¼ | .08 | .08¼ |
| 500-3½ | .09 | .09¼ | .09 | .09¼ |
| 750-3½ | .09½ | .09¾ | .09½ | .09¾ |
| 1,200-3½ | .10 | .10¼ | .10 | .10¼ |
| 2,000-4 | .10½ | .10¾ | .10½ | .10¾ |
| Red Oils: | | | | |
| 200-5-6 | .06½ | | .06½ | |
| 300-5-6 | .07 | .07¼ | .07 | .07¼ |
| 500-5-6 | .08 | .08¼ | .08 | .08¼ |
| 750 | .08½ | .08¾ | .08½ | .08¾ |
| 1,200-5-6 | .09 | .09¼ | .09 | .09¼ |
| 2,000-6 plus | .09½ | .09¾ | .09½ | .09¾ |
| **CALIFORNIA—** | | | | |
| Pale Oils: | | | | |
| 100-2½-3 | .23 | .25 | .23 | .25 |
| 200-2½-3 | .23 | .25 | .23 | .25 |
| 300-3-3½ | .23 | .25 | .23 | .25 |
| 350-3-4 | .23 | .25 | .23 | .25 |
| 400-3-4 | .23 | .25 | .23 | .25 |
| 450-3-4 | .23 | .25 | .23 | .25 |
| 550-3-4 | .23 | .25 | .23 | .25 |
| 600-3-4 | .23 | .25 | .23 | .25 |
| Red Oils: | | | | |
| 200-4-5 | .23 | .25 | .23 | .25 |
| 300-5-6 | .23 | .25 | .23 | .25 |
| 350-5-6 | .23 | .25 | .23 | .25 |

| | | | | |
|---|---|---|---|---|
| 400-5-6 | .23 | .25 | .23 | .25 |
| 450-5-6 | .23 | .25 | .23 | .25 |
| 500-5-6 | .23 | .25 | .23 | .25 |
| 600-5-6½ | .23 | .25 | .23 | .25 |
| 700-6½ plus | .23 | .25 | .23 | .25 |
| 750-6½ plus | .23 | .25 | .23 | .25 |
| 900-6½ plus | .23 | .25 | .23 | .25 |
| PENNSYLVANIA— | | | | |
| 150 vis. at 70° F., 3 color; | 400-405 flash: | | | |
| Zero pour test | .23½ | .24 | .23½ | .24 |
| 10 pour test | .22½ | .23 | .22½ | .23 |
| 15 pour test | .22 | .22½ | .22 | .22½ |
| 25 pour test | .21 | .21½ | .21 | .21½ |
| 180 vis. at 70° F., 3 color: | | | | |
| 25 pour test | .25 | .25½ | .25 | .25½ |
| 200 vis. at 70° F., 3 color: | | | | |
| Zero pour test | .30 | .30½ | .30 | .30½ |
| 10 pour test | .28½ | .29 | .28½ | .29 |
| 15 pour test | .28 | .28½ | .28 | .28½ |
| 25 pour test | .27½ | .28 | .27½ | .28 |

## Bright and Steam Refined Stocks

| OKLAHOMA (Group 3)— | Feb. 13 | | Feb. 6 | |
|---|---|---|---|---|
| 630 light green | .15 | | .15 | |
| 600 light green S.R. | .07 | .09 | .07 | .09 |
| 600 dark green S.R. | .05 | .07 | .05 | .07 |
| Bright Stocks: | | | | |
| 190-200 D | .26½ | | .26½ | |
| 150-160 D, 0-10 | .23¾ | | .23¾ | |
| 150-160 D, 10-25 | .23¼ | | .23¼ | |
| 150-160 D, 25-40 | .22¾ | | .22¾ | |
| 150-160 E | .22¾ | | .22¾ | |
| PENNSYLVANIA— | | | | |
| 600 S.R. | .18½ | .19 | .18½ | .19 |
| 650 S.R. | .21 | .21½ | .21 | .21½ |
| 600 Pennsylvania flash | .22 | .22½ | .22 | .22½ |
| 630 flash | .26½ | .27 | .26½ | .27 |
| 600 Warren E filtered | .21½ | .22 | .21½ | .22 |
| Pennsylvania Grade bright stock: | | | | |
| No. 8 color, 145-50 at 210; | 540-550 flash: | | | |
| 10 pour test | .29 | .29½ | .29 | .29½ |
| 15 pour test | .28½ | .29 | .28½ | .29 |
| 20 pour test | .28 | .28½ | .28 | .28½ |
| 25 pour test | .27½ | .28 | .27½ | .28 |

## Wax and Petrolatum

(Prices per pound)

| OKLAHOMA (Group 3)— | Feb. 13 | | Feb. 6 | |
|---|---|---|---|---|
| 124-126 white crude scale | .03¾ | .03⅞ | .03¾ | .03⅞ |
| PENNSYLVANIA— | | | | |
| 122-124 | .04 | .0405 | .04 | .0405 |
| 124-126 | .0405 | .0410 | .0405 | .0410 |
| NEW YORK HARBOR— | | | | |
| Wax (a.m.p.) in bags: | | | | |
| 120-122 | .0430 | | .0430 | |
| 123-125 | .0445 | | .0445 | |
| 125-127 | .0455 | | .0455 | |
| 130-132 | .0495 | | .0495 | |
| 133-135 | .0555 | | .0555 | |
| 135-137 | .0580 | | .0580 | |
| 124-126 crude scale | .03¾ | .04 | .03⅞ | .04 |
| Petrolatum in barrels in carload lots: | | | | |
| Dark green | .01⅞ | .02 | .01⅞ | .02 |
| Amber | .02⅞ | .03 | .02⅞ | .03 |
| Extra amber | .03⅛ | .03¼ | .03⅛ | .03¼ |
| Lily white | .06¾ | .06⅞ | .06¾ | .06⅞ |
| Snow white | .07¾ | .07⅞ | .07¾ | .07⅞ |
| Cream | .05⅝ | .05¾ | .05⅝ | .05¾ |
| CHICAGO (f.o.b. switching district)*— | | | | |
| 122-124 wax | .0465 | .0475 | .0465 | .0475 |
| 125-127 wax | .0490 | .0500 | .0490 | .0500 |
| 127-129 wax | .0505 | .0515 | .0505 | .0515 |
| 130-132 wax | .0565 | .0575 | .0565 | .0575 |
| 132-134 wax | .0590 | .0600 | .0590 | .0600 |

*Cents per pound on carlot orders in burlap bags of 225 lbs. approx. Add 3° F., a.m.p.

## Export Prices

GASOLINE

| | Feb. 13 | Feb. 6 |
|---|---|---|
| GULF COAST— | | |
| U. S. Motor | .04¾ .04⅞ | .04¾ |

| | | | | |
|---|---|---|---|---|
| 60-62 400 | .05 | | .05 | .05½ |
| 61-63 390 | .05¼ | | .05⅛ | .05¼ |
| 64-66 375 | .05¼ | .05⅜ | .05¼ | .05⅜ |
| LOS ANGELES, CALIF.— | | | | |
| U. S. Motor grades: | | | | |
| 53-55 octane | .04¼ | .04½ | .04¼ | .04½ |
| 55-65 octane | .04½ | .04¾ | .04½ | .04¾ |
| 65-67 octane | .04¾ | .05 | .04¾ | .05 |
| 67-69 octane | .05 | .05¼ | .05 | .05¼ |
| Above 69 octane | .05¼ | .05¾ | .05¼ | .05¾ |
| 58-60 400 endpoint | .05 | .05¾ | .05 | .05¾ |
| **KEROSENE** | | | | |
| GULF COAST— | | | | |
| 41-43 prime white | .04⅛ | .04¼ | .04⅛ | .04¼ |
| 41-43 water white | .04¼ | .04⅜ | .04¼ | .04⅜ |
| 44 water white | .04⅜ | .04½ | .04⅜ | .04½ |
| LOS ANGELES, CALIF.— | | | | |
| 41-43 water white | .04 | .04½ | .04 | .04½ |
| **LUBRICANTS** | | | | |
| NEW YORK (f.a.s. in bbls.)— | | | | |
| Cylinder Stocks: | | | | |
| 600 Warren E | .28 | .29 | .28 | .29 |
| 600 S.R. unfiltered | .25½ | .26½ | .24½ | .25½ |
| 650 S.R. unfiltered | .27½ | .28½ | .27½ | .28½ |
| 600 flash S.R. | .28¼ | .29 | .28½ | .29 |
| 630 flash S.R. | .32½ | .33 | .32½ | .33 |
| Bright stock, 8 color | .34 | .35 | .34 | .35 |
| Bright stock, 6½ plus, dil. | .33 | .34 | .33 | .34 |
| **NEUTRAL OILS** | | | | |
| 200-3 color | .33 | .34 | .32 | .33 |
| 150-3 color | .28 | .28½ | .28 | .28½ |
| **PARAFFIN WAX (Fully Refined)** | | | | |
| NEW YORK (prices per pound)— | | | | |
| 120-122 a.m.p. | .04¼ | .04⅜ | .04¼ | .04⅜ |
| 123-125 a.m.p. | .04⅜ | .04½ | .04⅜ | .04½ |
| 125-127 a.m.p. | .04½ | .04⅝ | .04½ | .04⅝ |
| 130-132 a.m.p. | .05 | .05⅛ | .05 | .05⅛ |
| 133-135 a.m.p. | .05½ | .05⅝ | .05½ | .05⅝ |
| 135-137 a.m.p. | .05¾ | .05⅞ | .05¾ | .05⅞ |

# Crude Oil Gravity Table

| Degrees gravity— | 1 Oklahoma and Kansas | 2 North Texas, Central and East Central Texas | 3 North Louisiana and Arkansas | 4 Gray County, Texas | 5 Carson, Hutchinson, and Moore Counties, Texas | 6 Conroe, Texas | 7 Salt Creek, Wyo. | 8 Gulf Coast, Texas, and Louisiana | 9 Gulf Coast, Texas, and Louisiana | 10 Caddo, Louisiana | 11 Sabine-DeSoto, Louisiana | 12 Homer, Louisiana | 13 Sarepta-Caterville, Louisiana | 14 El Dorado, Arkansas | 15 Haynesville, Louisiana | 16 Miller County, Arkansas | 17 Cotton Valley, Louisiana |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Below 20 | ... | ... | ... | ... | ... | ... | ... | $.82 | $.82 | ... | ... | ... | ... | ... | ... | ... | ... |
| 20-20.9 | ... | ... | ... | ... | ... | ... | ... | .84 | .84 | ... | ... | ... | ... | ... | ... | ... | ... |
| 21-21.9 | ... | ... | ... | ... | ... | ... | ... | .86 | .86 | ... | ... | ... | ... | ... | ... | ... | ... |
| 22-22.9 | ... | ... | ... | ... | ... | ... | ... | .88 | .88 | ... | ... | ... | ... | ... | ... | ... | ... |
| 23-23.9 | ... | ... | ... | ... | ... | ... | ... | .90 | .90 | ... | ... | ... | ... | ... | ... | ... | ... |
| 24-24.9 | ... | ... | ... | ... | ... | ... | ... | .92 | .92 | ... | ... | ... | ... | ... | ... | ... | ... |
| Below 25 | *$ .76 | ... | ... | ... | ... | ... | ... | ... | ... | $ .63 | $.69 | $ .71 | $.75 | $.75 | $ .65 | $.62 | $.70 |
| 25-25.9 | *.78 | ... | ... | ... | ... | ... | ... | .94 | .94 | .65 | .71 | .73 | .77 | .77 | .67 | .64 | .72 |
| 26-26.9 | *.80 | ... | ... | ... | ... | ... | ... | .96 | .96 | .67 | .73 | .75 | .79 | .79 | .69 | .66 | .74 |
| 27-27.9 | *.82 | ... | ... | ... | ... | ... | ... | .98 | .98 | .69 | .75 | .77 | .81 | .81 | .71 | .68 | .76 |
| 28-28.9 | *.84 | ... | ... | ... | ... | ... | ... | 1.00 | 1.00 | .71 | .77 | .79 | .83 | .83 | .73 | .70 | .78 |
| Below 29 | .84 | $.79 | $.79 | ... | ... | ... | $.84 | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... |
| 29-29.9 | .86 | .81 | .81 | ... | ... | ... | .86 | 1.02 | 1.02 | .73 | .79 | .81 | .85 | .85 | .75 | .72 | .80 |
| 30-30.9 | .88 | .83 | .83 | ... | ... | ... | .88 | 1.04 | 1.04 | .75 | .81 | .83 | .87 | .87 | .77 | .74 | .82 |
| 31-31.9 | .90 | .85 | .85 | ... | ... | ... | .90 | 1.06 | 1.05 | .77 | .83 | .85 | .89 | .89 | .79 | .76 | .84 |
| 32-32.9 | .92 | .87 | .87 | ... | ... | ... | .92 | 1.08 | 1.06 | .79 | .85 | .87 | .91 | .91 | .81 | .78 | .86 |
| 33-33.9 | .94 | .89 | .89 | ... | ... | ... | .94 | 1.10 | 1.07 | .81 | .87 | .89 | .93 | .93 | .83 | .80 | .88 |
| 34-34.9 | .96 | .91 | .91 | ... | ... | ... | .96 | 1.12 | 1.08 | .83 | .89 | .91 | .95 | .95 | .85 | .82 | .90 |
| Below 35 | ... | ... | ... | $.79 | $.69 | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... |
| 35-35.9 | .98 | .93 | .93 | .81 | .71 | $1.09 | .98 | 1.12 | 1.09 | .85 | .91 | .93 | .97 | .97 | .87 | .84 | .92 |
| 36-36.9 | 1.00 | .95 | .95 | .83 | .73 | 1.11 | 1.00 | 1.12 | 1.10 | .87 | .93 | .95 | .99 | .99 | .89 | .86 | .94 |
| 37-37.9 | 1.02 | .97 | .97 | .85 | .75 | 1.13 | 1.02 | 1.12 | 1.11 | .89 | .95 | .97 | 1.01 | 1.01 | .91 | .88 | .96 |
| 38-38.9 | 1.04 | .99 | .99 | .87 | .77 | 1.15 | 1.04 | 1.12 | 1.12 | .91 | .97 | .99 | 1.03 | 1.03 | .93 | .90 | .98 |
| 39-39.9 | 1.06 | 1.01 | 1.01 | .89 | .79 | 1.17 | 1.06 | 1.12 | 1.13 | .93 | .99 | 1.01 | 1.05 | 1.05 | .95 | .92 | 1.00 |
| 40 and over | 1.08 | 1.03 | 1.03 | .91 | .81 | 1.19 | 1.08 | 1.12 | 1.14 | .95 | 1.01 | 1.03 | 1.07 | 1.07 | .97 | .94 | 1.02 |

*The following companies purchasing crude oil in Kansas or Oklahoma, or both, begin their price schedules: Below 25 degrees, 76 cents; 25-25.9 degrees, 78 cents, with 2 cents added for each degree upward to 40 and over at $1.08: Carter Oil Co., Magnolia Petroleum Co., Pure Oil Co., Rock Island Refining Co., Shell Petroleum Corp., Sinclair Prairie Oil Marketing Co., Skelly Oil Co., and Wilcox Oil & Gas Co. All others begin their schedule at below 29 degrees, 84 cents, excepting Phiitex Oil Co., which begins with below 31 degrees at 88 cents.

Column 1—Effective September 29, Texas Co. in Oklahoma; Stanolind Crude Oil Purchasing Co. in Kansas and Oklahoma; Anderson & Prichard, Inc., in Oklahoma; Bell Oil & Gas Co. in Oklahoma; Carter Oil Co. in Oklahoma and Kansas; Deep Rock Oil Co. in Oklahoma; Derby Oil Co. in Kansas; Globe Refining Co. in Oklahoma; Golden Rule Refining Co. in Kansas; Gypsy Oil Co. in Oklahoma and Kansas; Kanotex Refining Co. in Kansas; Magnolia Petroleum Co. in Oklahoma; Mid-Continent Petroleum Corp. in Oklahoma; National Refining Co. in Kansas and Oklahoma; Shell Petroleum Corp. in Kansas and Oklahoma; Sinclair Prairie Oil Marketing Co. in Kansas and Oklahoma; Texas Co. in Oklahoma; Tide Water Oil Co. in Oklahoma; Vickers Refining Co. in Kansas; Continental Oil Co. in Kansas and Oklahoma; Empire Pipe Line Co. in Oklahoma and Kansas; Phiitex Oil Co. in Kansas and Oklahoma; Pure Oil Co. in Oklahoma; Skelly Oil Co. in Kansas. Effective September 29, by White Eagle Oil Corp. in Kansas; on October 1 by Barnsdall Refineries, Inc., in Oklahoma.

Column 2—Effective September 29, by Texas Co., Stanolind Crude Oil Purchasing Co., Humble Oil & Refining Co., Sinclair Prairie Oil Marketing Co., Gulf Pipe Line Co., Magnolia Petroleum Co., Bell Oil & Gas Co., Continental Oil Co. Effective September 29, in the Van Pool, Van Zandt County, Pure Oil Co. posted below 29 degrees, 84 cents, with 2 cents added for each degree up to 40 and over at $1.08.

Column 3—Effective September 29, by Texas Co., Magnolia Petroleum Co., Gulf Refining Co. Effective December 22, Stanolind Oil & Gas Co. in Pine Island, Louisiana, and Marion County, Texas, posted below 29 degrees, 79 cents, with 2 cents added for each degree up to 40 and over at $1.03. For Standard Oil Co. of Louisiana's prices see Columns 10 to 16, inclusive.

Column 4—Effective September 29, by Texas Co., Humble Oil & Refining Co., Magnolia Petroleum Co., Sinclair Prairie Oil Marketing Co., and H. F. Wilcox Oil & Gas Co. On same day Phiitex Oil Co. posted below 31 degrees, 71 cents, with 2 cents added for each degree up to 40 and over at 91 cents.

Column 5—Effective September 29, by Texas Co., Humble Oil & Refining Co., Gulf Pipe Line Co., Magnolia Petroleum Co., Wilcox Oil & Gas Co., Continental Oil Co. On same day, Phiitex Oil Co. posted below 31 degrees, 61 cents, with 2 cents added for each degree upward to 40 and over at 81 cents.

Column 6—Effective September 29, by Humble Oil & Refining Co. and Tide Water Oil Co., and on September 30, by Texas Co. which on September 29 had posted a schedule of $1.07 to $1.12 with a 1-cent spread on each degree.

Column 7—Effective September 29 by Stanolind Oil & Gas Co.

Column 8—Effective September 29, by Humble Oil & Refining Co., Gulf Pipe Line Co., Shell Petroleum Corp., Pure Oil Co., Sinclair Prairie Oil Marketing Co. On October 2, Magnolia Petroleum Co. posted Lockport, Louisiana: 20-20.9 degrees, 84 cents, with 2 cents added for each degree upward to 34 and over at $1.12, and in Cameron Meadows and Iowa, Louisiana: Below 20 degrees, 72 cents with 2 cents added for each degree up to 34 and over at $1.02. These prices were 2 cents higher on each degree than Magnolia prices posted on September 29. Effective September 29, Shell Petroleum Corp. posted in Iowa, Louisiana, district: Below 20 degrees, 70 cents, with 2 cents added for each degree upward to 34 degrees and over at $1; and in Black Bayou and White Castle, Louisiana: Below 20 degrees, 80 cents, with 2 cents added for each degree upward to 34 degrees and over at $1.10.

Column 9—Effective September 30, Texas Co. (On September 29, Texas Co. had posted a schedule 2 cents lower on each degree, but changed it on September 30.)

Columns 10, 11, 12, 13, 14, 15, 16—Effective September 29, by Standard Oil Co. of Louisiana and Louisiana Oil Refining Co.

Column 17—Effective September 29, by Louisiana Oil Refining Co.

(California Crude Oil Prices on Page 31)

## Crude Oil Prices

### Oklahoma, Kansas, North Central and East Central Texas

| | |
|---|---|
| East Texas | $1.00 |
| Stratman, Kans. (Sept. 29, 1933) | 1.08 |
| Corsicana (heavy) (June 17, 1933)* | .30 |
| Other fields | (See gravity table) |

Note—In East Texas, effective September 29, 1933, by Texas Co., Stanolind Crude Oil Purchasing Co., Humble Oil & Refining Co., Shell Petroleum Corp., Gulf Pipe Line Co., Tide Water Oil Co., Sinclair Prairie Oil Marketing Co., Magnolia Petroleum Co., Sun Oil Co., Panola Pipe Line Co., and Empire Oil & Refining Co.

*Magnolia Petroleum Co.

### West Texas

| | |
|---|---|
| Crane, Upton, Crockett, Howard, Glasscock, Mitchell (Sept. 29, 1933) | $ .70 |
| Ector, Winkler and Pecos Counties and Lea County, New Mexico (Sept. 29, 1933) | .75 |
| Pecos County, Yates shallow pool (Sept. 29, 1933)* | .65 |
| Jones and Fisher Counties. | See gravity table. |

Note—Effective September 29, 1933, by Humble Oil & Refining Co., Texas Co., Gulf Pipe Line Co., Shell Petroleum Corp., Magnolia Petroleum Co., and by Stanolind Oil & Gas Co. in Winkler County, Texas.

*Shell Petroleum Corp.

### Gulf Coast

| | |
|---|---|
| Grade A and Grade B specifications discontinued by leading buyers | (See gravity table) |
| Tomball (see note)* | $1.15 |
| Livingston (Sept. 29, 1933)† | 1.00 |
| Cleveland (Jan. 11, 1934) | 1.00 |
| Greta (Sept. 29, 1933) | .85 |
| Refugio, light | (See gravity table) |
| Refugio, heavy (Sept. 29, 1933)‡ | .85 |
| Markham and High Island | (See Gulf Coast gravity table) |
| Conroe | (See Conroe gravity table) |

Note—Tomball, effective September 29, by Humble Oil & Refining Co., and October 2 by Magnolia Petroleum Co., and November 10 by Stanolind Oil & Gas Co.

*Greta posted by Texas Co. †Shell Petroleum Corp. ‡Refugio heavy, by Humble Oil & Refining Co. Cleveland (Liberty County), posted by Magnolia Petroleum Co.

### South Central and Southwest Texas

(See note below table)

| | |
|---|---|
| Darst Creek | $.87 |
| Mirando | .80 |
| Luling (Sept. 29, 1933) | .75 |
| Pettus | 1.05 |
| Salt Flat | .87 |
| Lytton Springs (Sept. 29, 1933) | .95 |
| Duval County (Sept. 29, 1933) | .80 |
| Saxet | .85 |

Note—Effective on September 29 by Humble Oil & Refining Co. in Darst Creek, Mirando, Pettus, Salt Flat and Saxet. Effective September 29 in Darst Creek by Gulf Pipe Line Co. and Texas Co. Effective October 2 by Magnolia Petroleum Co. Effective in Pettus and Salt Flat on September 29 by Humble Oil & Refining Co. and Gulf Pipe Line Co. Luling and Lytton Springs by Magnolia Petroleum Co. Duval County by Texas Co. Saxet, effective September 29, by Humble Oil & Refining Co. and Texas Co.

(Continued on Page 31)

# TANK WAGON MARKETS

Quotations for gasoline and kerosene in United States, as furnished by the larger marketing concerns, include taxes

February 13, 1934

### Taxes

The gasoline quotations given in the following tables include the 1 cent Federal tax, as well as state, county and city taxes. The gasoline quoted is the regular or standard grade. In most marketing areas a third grade and a premium grade are also available.

### Southern District

STANDARD OIL CO. (KENTUCKY)

| | Gasoline: Tank wagon | Gasoline: Service station | Gasoline: Incl'ds tax of | Kero. tank wagon |
|---|---|---|---|---|
| Atlanta, Ga. | 21 0 | 21.0 | 7.0 | 14.0 |
| Augusta | 21.0 | 21.0 | 7.0 | 14.0 |
| Macon | 21.5 | 21.5 | 7.0 | 14.0 |
| Savannah | 21.5 | 21.5 | 7.0 | 14.0 |
| Birm'ham, Ala. | 23.5 | 23.5 | 8.0 | 12.0 |
| Mobile | 22.5 | 22.5 | 8.0 | 12.5 |
| Montgomery | 21.0 | 21.0 | 8.0 | 14.5 |
| Jackson, Miss. | 20.5 | 20.5 | 7.0 | 13.0 |
| Vicksburg | 20.0 | 20.0 | 7.0 | 13.0 |
| Jack'ville, Fla. | 21.5 | 21.5 | 8.0 | 12.5 |
| Miami | 21.5 | 21.5 | 8.0 | 12.5 |
| Pensacola | 21.5 | 21.5 | 8.0 | 13.5 |
| Tampa | 21.5 | 21.5 | 8.0 | 12.5 |
| Lexington, Ky. | 19 0 | 19 0 | 6.0 | 11.0 |
| Covington | 19.5 | 19.5 | 6.0 | 11 0 |
| Louisville | 19 5 | 19 5 | 6 0 | 11.0 |
| Paducah | 18.5 | 18.5 | 6.0 | 10.0 |

In addition to the state tax of 4 cents on gasoline, Montgomery has city and county tax of 2 cents on gasoline and one-half cent on kerosene. Kerosene prices in Georgia and Mississippi include 1 cent state tax; in Alabama, an inspection fee of one-half cent on kerosene and one-fortieth cent on gasoline. To Pensacola, Mobile and Birmingham state taxes on gasoline add 1 cent city tax.

### Southwestern District

MAGNOLIA PETROLEUM CO.

| | Gasoline: Tank wagon | Gasoline: Service station | Gasoline: Incl'ds tax of | Kero. tank wagon |
|---|---|---|---|---|
| Dallas, Tex. | 17.0 | 19 0 | 5.0 | 9 5 |
| Fort Worth | 17 0 | 19.0 | 5.0 | 8 5 |
| Houston | 15.0 | 18.0 | 5 0 | 8 5 |
| San Antonio | 17.0 | 19 0 | 5.0 | 8.5 |
| El Paso | 17 5 | 19.5 | 6 0 | 11.0 |
| Muskogee, Okla. | 16.0 | 18 0 | 5 0 | 8 5 |
| Okla. City | 16 0 | 18 0 | 5 0 | 8.5 |
| Tulsa | 16.0 | 18.0 | 5 0 | 8.5 |
| Ft. Smith, Ark. | 14.5 | 16 5 | 7.0 | 9 0 |
| Little Rock | 17 1 | 19 1 | 7.0 | 9.0 |
| Texarkana | 14 8 | 16 8 | 5 0 | 8.5 |

### Standard Oil Co. (Indiana)

| | Gasoline: Tank wagon | Gasoline: Service station | Gasoline: Incl'ds tax of | Kero. tank wagon |
|---|---|---|---|---|
| Chicago | 17.3 | 17.3 | 4.0 | 9.7 |
| Decatur, Ill. | 17.7 | 17.7 | 4.0 | 10.2 |
| E. St. Louis | 17.0 | 16 2 | 4 0 | 9 5 |
| Joliet | 17.7 | 17.7 | 4.0 | 10.2 |
| Peoria | 17.7 | 17.7 | 4.0 | 10 2 |
| Quincy | 17.5 | 17.5 | 4.0 | 10.0 |
| Davenport, Ia. | 17.6 | 17.6 | 4 0 | 10.1 |
| Des Moines | 17.6 | 17.6 | 4.0 | 8 0 |
| Mason City | 17.6 | 17.6 | 4.0 | 10.1 |
| Sioux City | 17.2 | 17 2 | 4 0 | 9 7 |
| Duluth, Minn. | 18.2 | 18 2 | 4 0 | 10.4 |
| Mankato | 17.8 | 17.8 | 4.0 | 10 3 |
| Minneapolis | 17.9 | 17.9 | 4 0 | 10 4 |
| LaCrosse, Wis. | 19 3 | 19.3 | 4 3 | 10 8 |
| Green Bay | 18.7 | 18.7 | 5 0 | 10.2 |
| Milwaukee | 18.2 | 18.2 | 5 0 | 9 7 |
| Madison | 18 4 | 18 4 | 5.0 | 9 9 |
| Detroit, Mich. | 17.5 | 17 5 | 4 0 | 10.5 |
| Grand Rapids | 17.7 | 17.7 | 4 0 | 10.2 |
| Saginaw | 18 0 | 18 0 | 4.0 | 10.5 |
| Evansville, Ind. | 15 5 | 15.5 | 5 0 | 10 0 |
| Indianapolis | 18.7 | 18.7 | 5.0 | 10.2 |
| South Bend | 19.0 | 19.0 | 5.0 | 10.5 |
| Fargo, N. Dak. | 19 6 | 19.6 | 4 0 | 11 1 |
| Huron, S. Dak. | 19.9 | 19 9 | 5.0 | 11 4 |
| Sioux Falls | 19.4 | 18.4 | 5.0 | 10 9 |
| E. C. Mo.* | 16.7 | 16.7 | 4 0 | 8 2 |
| Springfield* | 16.6 | 16.6 | 4.0 | 9.1 |
| St. Louis | 15.7 | 15.7 | 3 5 | 7 7 |
| St. Joseph* | 16.3 | 16.3 | 4.0 | 8.3 |
| Wichita, Kans. | 15.6 | 15 6 | 4.0 | 9 1 |
| Bartlesville, Okla. | 16.0 | 18 5 | 5 0 | 8 5 |

*State tax 3 cents, 1-cent city tax and 1-cent Federal tax.

Effective June 1, 1933—Discounts off tank wagon price to consumers on 500 gallons or more per month in territory outside of Chicago metropolitan area: 3 cents on Ethyl and Red Crown gasolines, and 1 cent on Stanolind gasoline. One-half cent additional discount in Chicago division.

Effective July 1, 1933—Discounts on resellers authorized agent's agreement made off the service station price throughout the territory as follows: 2.5 cents on Red Crown, Ethyl and Standard Red Crown gasolines, and 1.5 cents on Stanolind gasoline. Half of reduction from normal service station price shall be absorbed by resellers up to maximum of 1 cent on all grades.

In St. Louis and St. Louis County, Missouri, the following discounts are in force: For 300 to 3,000 gallons monthly, 2 cents on regular and premium, 1 cent on third grade; for 3,001 to 10,000 gallons, 3 cents on regular and premium, 1 cent on third grade; for more than 10,000 gallons, 3½ cents on regular and premium, 1 cent on third grade.

### Stanolex Furnace Oil in Chicago

Effective September 13, 1933, prices f.o.b. Chicago, tank wagon prices: No. 1 (36-40 lt. stw. zero), under 100 gallons, 8¼ cents; No. 2 (30-34 stw. zero), 7⅝ cents; No. 3 (22-26 zero), 7¼ cents; No. 4 under 300 gallons (12-16 zero), 6¼ cents; viscosity of No. 4, 90-115 at 100° F.; No. 5 under 300 gallons, 6 cents; for deliveries of 100 gallons or more deduct 1 cent.

### Naphtha

| | Tank wagon |
|---|---|
| Oleum spirits | 13.9 |
| V.M.&P. naphtha | 16.9 |
| Cleaners' naphtha | 15.0 |
| Stanisol | 15.0 |

Prices f.o.b. Chicago, September 13, 1933. Each of above prices subject to discount of 1 cent per gallon for 150-gallon lots if covered by contracts.

### Atlantic Coast District

STANDARD OIL CO. OF NEW JERSEY

| | Gasoline: Tank wagon | Gasoline: Service station | Gasoline: Incl'ds tax of | Kero. tank wagon |
|---|---|---|---|---|
| Atl'tic City, N.J. | 17.5 | 17.0 | 4.0 | 10.0 |
| Newark | 16.8 | 15.5 | 4.0 | 9.5 |
| Annapolis, Md. | 18.1 | 17.6 | 5.0 | 10.0 |
| Baltimore | 17.6 | 17.1 | 5.0 | 9.0 |
| Cumberland | 19.1 | 19.3 | 5.0 | 12.7 |
| Wash'g'n, D. C. | 16.1 | 12.0 | 3.0 | 11.0 |
| Danville, Va. | 20.2 | 19.7 | 6.0 | 13.9 |
| Norfolk | 18.7 | 15.5 | 6.0 | 11.3 |
| Petersburg | 19.5 | 19.0 | 6.0 | 11.4 |
| Richmond | 19.1 | 18.6 | 6.0 | 11.7 |
| Roanoke | 20.3 | 19 8 | 6 0 | 12.9 |
| Charla'n, W.Va. | 18.5 | 18.0 | 5.0 | 13.6 |
| Parkersburg | 17.8 | 17.3 | 5.0 | 11.2 |
| Wheeling | 18.5 | 18.0 | 5.0 | 12.3 |
| Charlotte, N. C. | 21.9 | 21.0 | 7.0 | 13.5 |
| Hickory | 22.2 | 19.0 | 7.0 | 13.7 |
| Mt. Airy | 22.2 | 21.7 | 7.0 | 13.8 |
| Raleigh | 21.7 | 21.2 | 7.0 | 13.3 |
| Salisbury | 22.0 | 19.0 | 7.0 | 13.6 |
| Charleston, S.C. | 19.7 | 19.2 | 7.0 | 11.3 |
| Columbia | 21.5 | 21.0 | 7.0 | 13.2 |
| Spartanburg | 21.9 | 21.0 | 7 0 | 13.5 |

Note—Dealer contracts are written at 2½ cents above the posted tank car price, less a voluntary allowance of one-half cent per gallon. This affects all points. Kerosene 1 cent off tank wagon for 25 gallons or more under contract except New Jersey and Baltimore, Md.

### Central South District

STANDARD OIL CO. OF LOUISIANA

| | Gasoline: Tank wagon | Gasoline: Service station | Gasoline: Incl'ds tax of | Kero. tank wagon |
|---|---|---|---|---|
| N. Orleans, La. | 19 3 | 18.5 | *7.0 | †12.0 |
| Baton Rouge | 18.7 | 18.2 | 6.0 | †12.0 |
| Alexandria | 19.6 | 19.1 | *7.0 | †10.0 |
| Lafayette | 19 8 | 17 9 | *7.0 | †12.0 |
| Lake Charles | 19 7 | 17.5 | *7.0 | †12.0 |
| Shreveport | 17.5 | 17.0 | 6.0 | †12.0 |
| Knoxville, Tenn. | 23.2 | 22.7 | 8.0 | 13.0 |
| Memphis | 21.6 | 17.0 | 8.0 | 9.5 |
| Chattanooga | 23 0 | 22 5 | 8.0 | 12.0 |
| Nashville | 22 4 | 21.5 | 8.0 | 11.0 |
| Bristol | 23.5 | 21.0 | 8.0 | 14.0 |

*Includes city tax of 1 cent. †Louisiana kerosene prices include 1-cent state tax.

Commercial consumers for tank wagon delivery pay following amounts over tank car price, basis yearly deliveries:

| | |
|---|---|
| 1,000 to 75,000 gallons | 2.5 |
| 75,000 to 300,000 gallons | 1.5 |
| Over 300,000 gallons | 1.0 |

### Pacific Coast Territory

STANDARD OIL CO. OF CALIFORNIA*

| | Gasoline: Tank wagon† | Gasoline: Posted retail | Gasoline: Incl'ds tax of | Kero. tank wagon |
|---|---|---|---|---|
| San Francisco | 16.5 | 19 5 | 4.0 | 13.5 |
| Los Angeles | 16.0 | 19.0 | 4.0 | 12.5 |
| Fresno, Calif. | 17 5 | 20 5 | 4.0 | 14.0 |
| Phoenix, Ariz. | 18.5 | 21.5 | 6.0 | ‡16.0 |
| Reno, Nev. | 20.0 | 23.0 | 5.0 | 15 5 |
| Portland, Ore. | 19.0 | 22.0 | 5.0 | 13.5 |
| Seattle, Wash. | 19.0 | 22.0 | 6.0 | 13.5 |
| Tacoma | 19.0 | 22 0 | 6.0 | 13.5 |
| Spokane | 21.0 | 24.0 | 6.0 | 15.0 |

*Retail prices posted by Standard Stations, Inc., a subsidiary.

†Prices are at company's plant or depots, as company does not operate stations. A 4-cent per gallon discount is given dealers and mustomers taking tank wagon lots except in Phoenix where the discount is 1 cent ‡Includes 5 cents state tax.

### New York and Part of New England

STANDARD OIL CO. OF NEW YORK

| | Gasoline: Tank wagon | Gasoline: Service station | Gasoline: Incl'ds tax of | Kero. tank wagon |
|---|---|---|---|---|
| Albany, N. Y. | 16.1 | 17.1 | 4.0 | 8.5 |
| New York | 16.0 | 17.0 | 4.0 | 8.5 |
| Buffalo | 16.7 | 17.7 | 4.0 | 8.0 |
| Rochester | 15.5 | 16.5 | 4.0 | 8.0 |
| Syracuse | 16.6 | 17.6 | 4.0 | 8.5 |
| Boston, Mass. | 16.0 | 17.0 | 4.0 | 8.0 |
| Portland, Me. | 17.2 | 18.2 | 5.0 | 9.0 |
| Manch't'r, N.H. | 18 2 | 19.2 | 5.0 | 8.5 |
| Burlington, Vt. | 18 8 | 19.8 | 5.0 | 9.0 |

### Pennsylvania, Delaware and Part of New England

ATLANTIC REFINING CO.

| | Gasoline: Tank wagon | Gasoline: Service station | Gasoline: Incl'ds tax of | Kero. tank wagon |
|---|---|---|---|---|
| Philadelphia, Pa. | 15.0 | 16.0 | 4.0 | 10.0 |
| Pittsburgh | 16.5 | 17.5 | 4.0 | 10.0 |
| Allentown | 16.5 | 17.5 | 4.0 | 10.0 |
| Erie | 16 5 | 17.5 | 4 0 | 10.0 |
| Scranton | 16.5 | 17.5 | 4.0 | 10 0 |
| Altoona | 16.5 | 17.5 | 4.0 | 10.0 |
| Dover, Del. | 16.5 | 17.5 | 4.0 | 10.0 |
| Wilmington | 13.5 | 13.5 | 4 0 | 10 0 |
| Boston, Mass. | 15 5 | 16.5 | 4.0 | 8.5 |
| Springfield | 16.1 | 17.1 | 4.0 | 8.0 |
| Worcester | 16.0 | 17 0 | 4.0 | 8.5 |
| Hartford, Conn. | 14.9 | 15.9 | 3.0 | 8.5 |
| New Haven | 14.7 | 15.7 | 3.0 | 8.0 |
| Providence, R.I. | 14.5 | 15 5 | 3.0 | 8.5 |

### Rocky Mountain District

CONTINENTAL OIL CO.

| | Gasoline: Tank wagon | Gasoline: Service station | Gasoline: Incl'ds tax of | Kero. tank wagon |
|---|---|---|---|---|
| Denver, Colo. | 19.5 | 22.0 | 6.0 | 12.5 |
| Pueblo | 17.5 | 20.0 | 6.0 | 13.0 |
| Grand Junction | 21.5 | 24.0 | 6.0 | 15 0 |
| Casper, Wyo. | 19 0 | 21.5 | 5.0 | 11.5 |
| Cheyenne | 17 5 | 20 0 | 5 0 | 13.0 |
| Butte, Mont. | 20.5 | 23.0 | 5.0 | 17.5 |
| Billings | 22 5 | 25 0 | 6 0 | 16.5 |
| Helena | 22.0 | 24.5 | 6.0 | 17.5 |
| Great Falls | 22 0 | 24.5 | 6.0 | 17.5 |
| Salt Lake, Utah | 21.5 | 24.0 | 5 0 | 16.0 |
| Boise, Idaho | 22.5 | 25 0 | 6 0 | 18.0 |
| Twin Falls | 22.5 | 25 0 | 6.0 | 18.0 |
| Albu'que, N. M. | 19.0 | 22 0 | *7.0 | 13.0 |

*One-cent city tax.

Effective October 21, 1933, discount to dealers with or without contract throughout Continental territory except New Mexico as follows: Service station price less 3 cents for regular grade and 2 cents for third grade.

### Canada*

IMPERIAL OIL, LTD.
Imperial 3-Star Gasoline

| | Gasoline: Tank wagon | Gasoline: Service station | Gasoline: Incl'ds tax of | Kero. tank wagon |
|---|---|---|---|---|
| Hamilton, Ont.† | 26.5 | 27.5 | 6 0 | 17.5 |
| Toronto, Ont.† | 26.5 | 27.5 | 6 0 | 17.5 |
| Brandon, Man.* | 31.0 | 34.5 | 7 0 | 22.5 |
| Winnipeg, Man. | 28.7 | 31.7 | 7 0 | 20.2 |
| Regina, Sask. | 29 0 | 32.0 | 6.0 | 21.5 |
| Saskatoon, Sask. | 31 8 | 34.8 | 6.0 | 24.3 |
| Edmonton, Alta. | 31 2 | 34 2 | 6.0 | 23.7 |
| Calgary, Alta. | 28 5 | 31 5 | 6 0 | 21.0 |
| Vanc'ver, B.C.† | 30.0 | 31.0 | 7 0 | 24.0 |
| Montreal, Que. | 24 0 | 27.0 | 6.0 | 17.0 |
| St. Johns, N. B. | 26.5 | 30.5 | 7 0 | 21.0 |
| Halifax, N. S. | 25.5 | 29 5 | 6.0 | 21.0 |

*Imperial gallon used in Canada. †Dealer discount posted tank wagon on gasoline in Ontario and British Columbia subject to dealer's discount of 3 cents per gallon.

### Ohio

STANDARD OIL CO. OF OHIO

| | Gasoline: Tank wagon | Gasoline: Service station | Gasoline: Incl'ds tax of | Kero. tank wagon |
|---|---|---|---|---|
| Ohio points | 16.5 | 17.5 | 5.0 | *13.5 |

*Includes state tax of 1 cent, effective July 22.

### Nebraska

STANDARD OIL CO. OF NEBRASKA

| | Gasoline: Tank wagon | Gasoline: Service station | Gasoline: Incl'ds tax of | Kero. tank wagon |
|---|---|---|---|---|
| Omaha | 18.3 | 19.3 | 5.0 | 9.0 |
| McCook | 15.9 | 15.9 | 5.0 | 8.0 |
| Norfolk | 18 8 | 19 8 | 6.0 | 11.3 |
| North Platte | 19 8 | 20 8 | 5.0 | 9.0 |
| Scottsbluff | 19 3 | 19.3 | 5.0 | 11.0 |

Note: Discount to dealers and AAA commissions. From service station price: Red Crown Ethyl and Standard Red Crown gasoline, 3 cents. Reliance (third grade) gasoline, 2 cents. Rentals under lease and agents agreement, one-half cent per gallon additional.

Discount to consumers under contract (large consumers under contracts and governmental units): On tank wagon deliveries of gasoline on monthly purchases of 500 gallons, or yearly purchases of 6,000 gallons, from the service station price: Red Crown Ethyl and Standard Red Crown Gasoline, 2 cents per gallon; Reliance (third brand) gasoline, 1 cent per gallon.

## Retail Price Changes

**Regular-Grade Gasoline and Kerosene**

Magnolia Petroleum Co. January 18 reduced the tank wagon and service station prices of gasoline .6 cent in Fort Smith. February 5 it advanced the tank wagon price 1½ cents throughout its territory except in Dallas, Houston, El Paso and Texarkana. February 6 it made a similar advance in Dallas, Houston and El Paso. February 6 it advanced the tank wagon price 1.3 cents in Texarkana and reduced the service station price .2 cent.

Standard Oil Co. of New Jersey January 31 reduced the service station price of gasoline one-half cent in Norfolk. February 3 it reduced the service station price of gasoline one-half cent in Washington and February 5 reduced the price one-half cent further.

Standard Oil Co. of Louisiana January 31 reduced the service station price of gasoline in Lafayette 1.4 cents. February 1 it reduced the service station price in Lake Charles 1.7 cents. On the same date it reduced the tank wagon price .1 cent and the service station price one-half cent in Nashville. February 3 it reduced the service station price 2 cents in Memphis. February 5 it advanced the service station price 1 cent in New Orleans.

Standard Oil Co. (Nebraska) January 29 reduced the tank wagon price of gasoline one-half cent and the service station price .7 cent in Scottsbluff. February 3 it reduced the tank wagon price of kerosene 1 cent in McCook.

Standard Oil Co. of New York February 9 advanced the tank wagon and service station prices of gasoline one-half cent throughout its territory.

Standard Oil Co. of California February 8 reduced the tank wagon and service station prices of gasoline 1 cent in Spokane.

### SHELL IN THE SOUTH

ST. LOUIS, Mo., Feb. 10.—A special advertising campaign was launched February 3 by Shell Petroleum Corp throughout Alabama, Florida, Georgia, Louisiana, Mississippi and Texas, to introduce an improved Super Shell gasoline that combines quick starting and full mileage the year round, it was announced this week by Paul Ryan, manager of the sales promotion-advertising department.

"This southern campaign is the opening gun of Shell's 1934 advertising program," Mr. Ryan said. "Numerous newspapers in metropolitan centers of six southern states will carry a series of large display advertisements on our new product throughout February. The campaign also will include direct mail, outdoor posters, and daily broadcasts from seven leading radio stations throughout the South."

This is the first exclusively southern advertising campaign ever launched by the Shell corporation.

### ATLANTIC BUILDS STORAGE

SYRACUSE, N. Y., Feb. 12.—The Atlantic Refining Co., Inc., has plans in progress for construction of a bulk gasoline storage and distributing plant on the Barge Canal here, to cost upwards of $100,000. Plans provide for erection of seven tanks with a capacity of 5,120,000 gallons, a two-story office building, garage and warehouse. Construction will start immediately.

# NATURAL GASOLINE MANUFACTURE

## Refiners Used 10.7 Per Cent Less Natural Gasoline 1933

Refiners who depend upon the Mid-Continent for natural gasoline supplies took 10.7 per cent less in 1933 than in the previous year. According to a summary made by the Western Petroleum Refiners Association, based upon Bureau of Mines data, Oklahoma and Kansas refiners did not follow this trend, however, and they consumed 2.1 per cent more in 1933 than in 1932. Inland Texas refiners also took more in 1933 by 4.9 per cent. The principal decline came in the Coastal Texas group which consumed 21.5 per cent less.

Stocks at local refineries were down 32.9 per cent at the close of the year, reflecting the relatively high natural price during the early part of December, compared with the refinery gasoline price.

MID-CONTINENT NATURAL GASOLINE STATISTICS

| Production at Natural Gasoline Plants | 1932 | 1933 | Percentage change |
|---|---|---|---|
| Oklahoma City | 78,400 | 92,500 | +18.0 |
| Osage County | 49,000 | 41,300 | —15.7 |
| Seminole | 130,000 | 97,000 | —25.4 |
| Rest of state | 121,200 | 128,900 | + 6.4 |
| Okla. total | 378,600 | 359,700 | — 5.0 |
| Kansas total | 24,800 | 22,900 | — 7.7 |
| Panhandle | 182,600 | 178,900 | — 2.0 |
| North Texas | 30,200 | 20,200 | —33.1 |
| West Central | 85,900 | 84,900 | — 1.2 |
| Rest of state | 72,400 | 75,400 | + 4.1 |
| Texas total | 371,100 | 359,400 | — 3.2 |
| La. total | 46,200 | 38,100 | —17.5 |
| Ark. total | 18,700 | 15,000 | —19.8 |
| Total | 839,400 | 795,100 | — 5.3 |
| **Shipments From Plants** | | | |
| Oklahoma | 391,674 | 353,740 | — 7.3 |
| Kansas | 24,818 | 22,790 | — 8.2 |
| Texas | 370,717 | 357,987 | — 3.4 |
| Louisiana | 46,723 | 38,158 | —18.3 |
| Arkansas | 18,738 | 15,025 | —19.8 |
| Total | 842,670 | 787,700 | — 6.5 |
| **Stocks at Local Refineries—December 31** | | | |
| Okla. & Kans. | 924 | 1,512 | +63.6 |
| Inland Texas | 168 | 294 | +75.0 |
| Coastal Texas | 9,198 | 4,914 | —46.6 |
| N. La. and Ark. | 168 | 294 | +75.0 |
| Coastal La. | none | none | .... |
| Total | 10,458 | 7,014 | —32.9 |
| **Used by Local Refineries** | | | |
| Okla. and Kans. | 203,574 | 207,816 | + 2.1 |
| Inland Texas | 136,416 | 142,968 | + 4.8 |
| Coastal Texas | 134,442 | 105,504 | —21.5 |
| N. La. and Ark. | 33,768 | 17,094 | —49.4 |
| Coastal La. | 35,028 | 11,928 | —65.9 |
| Total | 543,228 | 485,310 | —10.7 |
| **Production Over Refinery Demand** | | | |
| Okla. and Kans. | 200,120 | 174,196 | —13.0 |
| Texas | 102,552 | 115,086 | +12.2 |
| La. and Ark. | *3,728 | 23,592 | .... |
| Total | 298,944 | 313,234 | + 4.8 |

## Charcoal Process Has Contributed to the Development of Gasoline Industry

One of the more efficient early processes for natural gasoline recovery is the charcoal adsorption system. This system is still in general use in the Eastern fields, principally in West Virginia.

The charcoal process has the advantage over other early processes of combined efficient recovery and selectivity of adsorption. The selectivity of adsorption results in the ability to produce a marketable product without the weathering losses of compression or oil adsorption products. To meet present day standards it is generally necessary to stabilize the charcoal plant product unless the system is operated for less than a complete recovery of the desired fractions, although the charcoal process is inherently more selective than oil adsorption.

The principal disadvantages of the charcoal system are: High first cost, due to the cost of activated charcoal and elaborate by-pass systems, necessary operation as a batch system, and the difficulties due to contamination of the charcoal when the system is applied to anything but clean sweet gas.

The system generally consists of three charcoal filled adsorbers, a boiler plant, and a condensing system. The adsorbers are alternately operated through three cycles: Adsorption, distillation and cooling. The by-pass system allows these services to be switched from one unit to another at regular intervals.

During the first cycle the rich gas is passed through the unit being used for an adsorber until the charcoal becomes saturated. The point of saturation is not fixed since, during the earlier part of the cycle, practically all of the propane and heavier fractions are liquefied. As the cycle progresses the lighter fractions held in the pores of the charcoal are displaced by the heavier fractions. The theoretically correct operation is to so control the time of this cycle that all of the propane and part of the butane is displaced, the material being retained in the charcoal being only butanes and heavier fractions in the proper ratio for the product desired. It has been found that, with many gases, some propane must be accepted in order to obtain a complete recovery of pentanes and heavier fractions.

During the second cycle, the adsorption service is switched to another unit and the saturated adsorber is steamed to remove the adsorbed gasoline. The steam and gasoline vapors pass directly to the gasoline condensers where the product is recovered.

The third or cooling cycle consists of preparing an adsorber, recently steamed, for adsorption service: The charcoal is both cooled and dried by passing the dry gas from the unit operating as an adsorber through the unit being cooled, on its way to the residue gas system.

Note.—The above discussion is the fifth of a series tracing chronologically the major changes made in gasoline plant design and operation since the earliest compression unit.

## Propose Second Gasoline Plant for Turner Valley

CALGARY, Alberta, Feb. 10.—Plans are being made by a group of Turner Valley operators headed by A. H. Mayland for the construction in the Turner Valley Field of a second gasoline absorption plant. It is understood that Minor Merriwether and associates of Los Angeles, who some time ago brought forward a similar project, will be connected with the new enterprise. Mr. Mayland has been in California in connection with the project.

Proposals have been made to Wellington Oil & Gas Co. to handle the gas from their well in Section 20-19-2w5. If this gas is secured, a plant of 60,000,000 feet daily capacity will be erected, though earlier plans called for a plant of 35,000,000 feet capacity. It was first planned to handle only the gas from the Mercury, Miracle, Hylo, Homestead and wells in South Turner Valley area.

### CANADIAN CONSUMPTION

Receipts of natural casinghead gasoline in Canada during November amounted to 3,620,125 gallons worth $270,237, against 5,712,784 gallons at $451,538 in October. Gasoline, lighter than .8235 specific gravity, imported in November declined to 760,305 gallons valued at $85,231 from the October total of 1,027,204 gallons with a valuation of $120,031.

## Second Suit Is Filed to Test Panhandle Gas Law

AMARILLO, Tex., Feb. 12.—The second suit has been filed in the local Federal district court for the purpose of testing the constitutionality of the "sour gas" law passed by the latest meeting of the Texas Legislature which permits gas to be taken from the Panhandle Field for processing through natural gasoline plants without requiring that the residue gas be used.

The new suit was filed Monday by E. C. Britain, a landowner in the Panhandle and also a director in the newly formed Panhandle Conservation Association. The petition alleges that the Shamrock Oil & Gas Co. and the Continental Oil Co. are taking gas from under the plaintiffs' land and processing it through a natural gasoline plant and allowing the residue gas to escape into the air.

Mr. Britain points out that the statute, passed by the forty-third legislature, allows the production of 25 per cent of the open flow of gas wells for natural gasoline plants, from "reservoirs of 300,000 acres or more," and that the Panhandle Field is the only one having so large an area.

He estimates the accumulated waste to date at 2,500,000,000,000 feet, which the petition claims "would be sufficient to supply the needs of all Texas for 70 years."

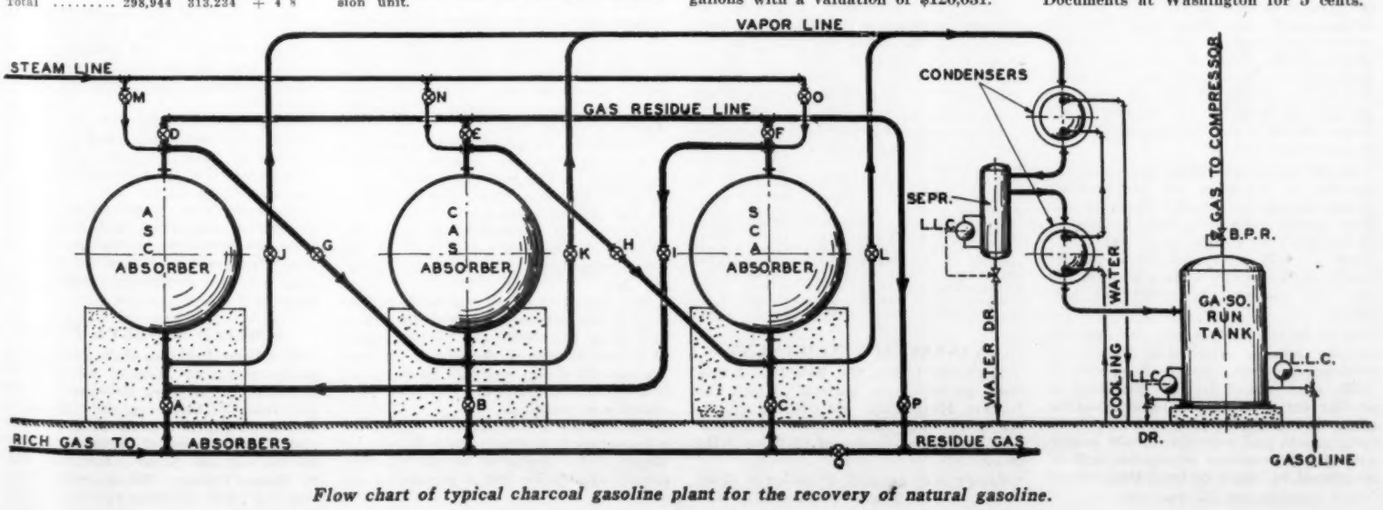
Joe Sneed, president of the newly organized Panhandle Conservation Association, filed a similar suit a week ago against the Skelly Oil Co. and Phillips Petroleum Co.

### HENDERSON PLANT FIRE

The Henderson Gasoline Co. was forced to temporarily discontinue operations in its 40,000,000-foot gasoline plant at Sanford, Tex., 16 miles west of Borger, because of the partial destruction of fractionating equipment during a fire on February 9. Repairs have been ordered and these are expected to be completed by the close of this month at the latest. Plant production is being planned within the next week or 10 days.

### MINERAL YEAR BOOK APPENDIX

Data regarding production, stocks and consumption of natural gasoline over 1932, with comparative data for previous years, has just been issued by the Department of Commerce as an appendix to its annual mineral year book. Copies are available from the Superintendent of Documents at Washington for 5 cents.




*Flow chart of typical charcoal gasoline plant for the recovery of natural gasoline.*

# NEWS FOR PETROLEUM REFINERS

## Secretary Ickes Approves Interpretations of Rules

In addition to the rewriting of Article 5, Rule 7, of the oil code, which deals with the providing of equipment for dispensing oil through retail outlets, Administrator Ickes has approved the following interpretations of Rules 8 and 9.

**Article 5, Rule 8**

1. The term "such location" in the last sentence of Paragraph 3, Rule 7, is interpreted to mean the premises upon which the equipment is located. Equipment loaned or leased by refiners, distributors, jobbers, or wholesalers to retailers or consumers, may be relocated on premises where installed only at the expense of the retailer or consumer of petroleum products to whom such equipment has been loaned or leased. It may not be moved to other premises either by the refiner, distributor, jobber, or wholesaler, owning such equipment or by said retailer or consumer for the convenience or use of said retailer or consumer. Promises, in the case of equipment loaned to consumers who are contractors, such as pipe line, levee, road or building contractors, etc., shall be defined to include only that area covered by the specific construction contract for which the equipment was originally loaned or leased.

2. The ownership of equipment now installed may be transferred as provided for in Rule 7 from one refiner, distributor, jobber, or wholesaler to another as loaned equipment, until it wears out. The rule intends to put a definite end to the loaning of equipment to replace present equipment when it wears out.

3. Steel or iron barrels or drums of not to exceed 110 gallons capacity, are considered as transportation media or packages so long as they remain the property of the supplying refiner, distributor, jobber, or wholesaler (excepting as provided below). Such steel barrels and drums may be sold with or without the ordinary steel barrel or drum faucets for use in connection therewith, providing an amount equal to a fair market value of the steel barrel or drum, and/or faucet is added to the cost of the product contained therein at the time of delivery. Steel barrels and drums not so sold shall remain the property of the refiner, distributor, jobber, or wholesaler, and if such steel barrel or drum is not returned to supplier at point of shipment within 90 days, it must be charged for and collection made not later than fifteenth promixo. It shall be optional with supplier to make charge at time of delivery and make refund for steel barrel or drum if returned within 90 days or make the charge and collection at the end of the 90-day period if the steel barrel or drum is not returned.

Steel barrels and drums furnished any reseller or consumer on memorandum charge or other returnable basis, as outlined above, cannot be used by reseller or consumer as storage on or after September 2, 1933, and must not be refilled except at the refiner's, distributor's, jobber's, or wholesaler's refinery or bulk plant.

Steel barrels and drums, the property of any refiner, distributor, jobber, or wholesaler, which, prior to September 2, 1933, were loaned to any consumer or reseller for the storage and/or handling of gasoline, naphtha, kerosene, Diesel and burning oils, and were then in the possession of any consumer or reseller, will be considered as leased or loaned equipment

(Continued on Page 55)

## Employes of Each Plant Have Right to Choose Plan for Collective Bargaining

WASHINGTON, D. C., Feb. 9.—Harold L. Ickes, oil administrator, today approved a decision by the Petroleum Labor Policy Board, that employes of the Magnolia Petroleum Co.'s refinery at Fort Worth, Tex., should hold an election to choose their own plan of representation for collective bargaining with their employers.

The Petroleum Labor Policy Board was set up by Administrator Ickes to assist him in enforcing the labor provisions of the code of fair competition for the petroleum industry. It was the first decision of the board.

"A petition sworn to by a majority of employes of the Fort Worth plant and presented to the Petroleum Labor Policy Board," Administrator Ickes said, "complained that the employes had been denied their right to bargain collectively through representatives of their own choosing, as provided in Section 7a of the National Industrial Recovery Act.

"The employes requested that an election be ordered to choose representatives for collective bargaining, without interference by the company. The company answered that representatives elected under a plan which it inaugurated in August would serve until October, 1934, and that no election was necessary.

"The Petroleum Labor Policy Board recently held hearings to gather the facts at issue, and reported to me with a recommendation that the election as asked by the employes be called for, since it appeared that the company's plan denied to them their right to choose their own method of collective bargaining.

"Witnesses advised the board that in voting on the company's plan, employes had expected to vote for or against it, but that no such opportunity was offered them. The plan was declared adopted when appointed representatives of the management, together with elected representatives of the employes, voted viva voce for its adoption in the presence of company officials and at a meeting arranged for and controlled by the company.

"The board found that the company's plan restricts the rights of employes under Section 7 (a) so that only employes of the company may act as representatives. All the witnesses testified that sentiment among the employes was opposed to this restriction on their choice of representatives, and that they preferred their right to choose their method of action without restriction. Witnesses all testified that employes wanted an election and that an election would allay discontent now existing.

"The evidence was considered by the board conclusive proof that employes are entitled to a secret election without interference, either by the company or by representatives of any unions, and in its decision the board provided for a ballot on the following four points:

"Whether to bargain collectively through the International Association of Oil Field, Gas Well and Refinery Workers of America.

"Whether to bargain collectively through the plan proposed by the company.

"Whether to bargain collectively through any other agency.

"Whether the employe preferred to bargain individually with the company.

"The decision applies only to the Fort Worth plant of the company."

### GASOLINE SALES IN CANADA

OTTAWA, Canada, Feb. 10.—Official figures of gasoline sales in Canada for November, 1933, compiled by the federal department of trade and commerce from the returns of the gasoline tax departments of the various provinces, show an increase compared with the November, 1932, figures. At the end of November the sales for the 11-month period of 1933 were, however, still below those for the same period of 1932.

Sales for November, 1933, for all Canada aggregated 43,856,000 gallons, compared with 38,237,000 gallons for the same month of 1932. Sales for the 11 months of 1933 at 473,288,000 gallons compared with 474,107,000 gallons in the 1932 period.

Comparative figures for the various provinces, in thousands of gallons, are as follows:

| | Nov. | | 11 mos. | |
|---|---|---|---|---|
| Province: | 1933 | 1932 | 1933 | 1932 |
| Pr. Edward Is. | 212 | 268 | 2,426 | 2,543 |
| Nova Scotia . | 1,549 | 1,678 | 17,560 | 17,778 |
| N. Brunswick | 1,040 | 1,176 | 12,083 | 12,885 |
| Quebec ..... | 5,836 | 7,040 | 82,320 | 86,033 |
| Ontario ..... | 25,065 | 18,457 | 230,489 | 221,867 |
| Manitoba ... | 1,667 | 1,476 | 23,080 | 25,046 |
| Saskatchewan | 2,530 | 2,395 | 31,014 | 32,205 |
| Alberta ..... | 2,861 | 2,934 | 38,380 | 38,965 |
| Br. Columbia. | 3,096 | 2,813 | 35,936 | 36,785 |

### KANSAS CITY INDICTMENT

KANSAS CITY, Mo., Feb. 10.—A Federal grand jury indicted Rufus H. Limpp, King City, Mo., filling station operator, and Sam Moore, Chillicothe coal dealer, on charges of violating NRA codes.

Limpp was accused of giving a ticket to the Lucille theater at King City with a sale of $5.72 worth of oil and gas to D. G. Gents.

### COURT REFUSES INJUNCTION

CHICAGO, Feb. 12.—Constitutional government might as well be abandoned if Congress is able to delegate power in the manner effected through the NRA, Federal Judge John P. Barnes of Chicago February 10 stated in an opinion denying a request for an injunction against an alleged violator of the petroleum code.

The statement was made in ruling on an application for a temporary injunction by U. S. District Attorney Dwight H. Green to restrain an oil company from giving premiums with the sale of petroleum products, in violation of Rule 17, Article 5, of the code.

"Constitutional government as we know it might as well cease to exist," declared the judge, "if Congress can delegate powers as it has under the NRA to provide for the general welfare."

Despite this statement, the court declared itself unqualified to rule on the constitutionality of the National Recovery Act.

The defendant in the case is the Suburban Motor Service, operated by David and Elias Kornblith, one of the lessees of Waggoner Service Stations of Chicago. The specific charge was that the company had distributed glassware and other merchandise as premiums.

In addition to denying the request for a temporary injunction, Judge Barnes set March 5 for argument on the Government's application for a permanent injunction.

## Northwest Stellarene Co. Not to Operate in Canada

COUTTS, Alberta, Feb. 10.—The sale of the Northwest Stellarene Co.'s plant here to the British American Oil Co., marks the retirement of the former company from Canadian refining and oil marketing activities, according to James W. Johnson, vice president. The company will continue to operate its plant at Shelby, Mont., however.

The Northwest Stellarene Co. constructed its Coutts refinery in 1930, later adding a Dubbs Universal products plant. The refinery has a capacity of 1,500 bbls. a day. The Northwest Stellarene Co. has built up an extensive distributing and marketing system in western Canada.

The British American Oil Co., which has the second largest gallonage distribution in Alberta, will, it is understood, materially enlarge the capacity of the plant here. The new owner is planning to operate to capacity. It is understood the Stellarene products will be continued under the new ownership.

Artic Oil Sales, Ltd., bulk distributor of Northwest Stellarene products in Lethbridge, Calgary and other southern Alberta points, will continue to operate with the "Artic Gold" line. This company, organized by Mart McMahon and Tom Brown, controls 20 bulk outlets, and is planning to set up a skeleton organization in the north, with bulk stations at Drumheller, Red Deer, Wetaskiwin, and Three Hills.

### DELAY RICHFIELD SALE

LOS ANGELES, Calif., Feb. 10.—While negotiations for the sale of the Richfield Oil Co. to the Standard Oil Co. of California have been going ahead for four months, consummation of the deal, if finally made, can not be reached for several months due to legal obstacles still to be overcome.

This was the statement of Richfield attorneys following reports that the sale had been completed for a total sum of approximately $23,500,000.

Before the property can be sold, reorganization committee officials in charge of the company explained, a foreclosure decree first must be filed. Then a signed offer must be presented in court and the court be petitioned to take jurisdiction. Before such procedure could be completed at least two or three months would pass, the officials said.

Actual sale of the company will not be decided until the very last day of the proceedings, it was pointed out, due to the fact that at the last moment another company might step in with a higher offer.

Meanwhile, counsel for the Federal Government were still going ahead with discussions with company officials concerning which of the assets are mortgaged and unmortgaged.

Richard Millar, secretary of the reorganization committee, said a statement from the committee relative to the progress being made in settling the company's affairs will be forthcoming within a few days.

### ACQUIRE MINERVA PLANT

The Kent Refining Co.'s 2,000-bbl. capacity plant at Minerva has been acquired by the Minerva Refining Co. which has recently been organized by E. L. Davis, J. Smith and S. F. Richardson, and is to be operated on crude produced in the shallow Minerva-Rockdale Field in Milam County. Headquarters of the company will be Minerva.

## One Barrel for 93 Cents Better Than Two for $1.02

WASHINGTON, D. C., Feb. 12.—Although oil production was curtailed during the last four months of 1933, when the industry was operating under an NRA code, producers of crude petroleum received about $1,000,000 more a day than during the preceding eight months. This was pointed out by Secretary Harold L. Ickes, oil administrator, on the basis of a report made to him by the Bureau of Mines.

"From September to December, inclusive, wells produced roughly half as much as during the eight months' period preceding it," Administrator Ickes said, "yet the producers received virtually the same money for their product. From January to August, inclusive, total production was 602,856,000 bbls., valued at $309,595,326. The daily average value was $1,274,055 and the average value per barrel 51 cents. In the September-December, inclusive, period, production totaled 296,018,000 bbls., valued at $276,212,596, an average of 93 cents a barrel.

"In view of these accomplishments, I feel that the oil administration should continue the program to keep production balanced with demand so as to protect the great majority in the industry who are co-operating to conserve the supply. It certainly is sounder business to produce 1 bbl. of oil worth 93 cents than 2 bbls. worth $1.02.

"In this belief, I shall continue, without any letup, our efforts to regulate production and to guard against upsetting the increasing stability of an industry that was staggering toward the brink of destruction less than six months ago."

## Oil Companies Queried on Accounting Practices

NEW YORK, Feb. 10.—The New York Stock Exchange this week sent out letters to the presidents of the 45 companies listed on that exchange seeking information regarding accounting practices with the view of bringing about the adoption of standard methods as the basis for reports on earnings. It is understood that the action was taken at the request of investors, including investment trusts whose portfolios in many cases contain a representative list of oil company stocks. In endeavoring to analyze reports of companies they have complained it was more difficult to secure accurate and comparable information than in other major industries due to the lack of uniformity in accounting methods.

One of the cost items often discussed has to do with drilling costs. Some companies charge all drilling to current expense, while others capitalize this cost and charge it off over several years during the life of a producing property. Arguments have been presented in support of both practices by oil company representatives.

In some cases, oil company statements carry inventories at market values, while others use cost of items if that is lower than the market value. The important factor in this practice lies in the variations of the cost figure for the several companies.

The figure for depletion has become increasingly important over the past two years. Some companies use the individual lease as the unit on which to figure depletions, while others take all their properties in a particular field. Statisticians of investment houses have data showing the direct importance of this practice in relation to company earnings over a period of years. There are many other items in which there is little uniformity among companies in accounting practice.

Under the auspices of the American Petroleum Institute in recent years some progress has been made in standardizing accounting practice within the oil industry. This work, however, has not reached the point where it is reflected in the annual statements and many of the subjects outlined in the exchange's letter to the oil companies have not been discussed.

# Sub-Committees on Drilling Practices in Texas, New Mexico and Oklahoma

WASHINGTON, D. C., Feb. 12.—Secretary Ickes, oil administrator, has announced the appointment of subcommittees of the Planning and Co-ordination Committee to deal with drilling practices in Texas, New Mexico, and Oklahoma.

The membership of the subcommittees was recommended to Administrator Ickes by the Planning and Co-ordination Committee representing the oil industry under the code of fair competition for the petroleum industry.

The names of committee members follow:

To the Planning and Co-ordination Committee:

We, your subcommittee on production, recommend that the following be named to the subcommittee on drilling practices of the State Production Committee of the State of Texas:

To represent the drilling branch of the industry:

1. George Cree, Cree & Hoover, Amarillo, Tex.
2. John R. Black, Dallas, Tex.
3. A. T. McDannald, Smith & McDannald, Houston, Tex.
4. M. J. Delaney, M. J. Delaney, Inc., Dallas, Tex.
5. A. A. Bauchanan, San Antonio, Tex.
6. A. H. Rowan, Rowan Drilling Co., Fort Worth, Tex.
7. H. H. Bass, H. W. Bass Drilling Co., Dallas, Tex.
8. E. A. Showers, Showers & Moncrief, Houston, Tex.

To represent the producing branch of the industry:

1. A. M. McCorkle, Stanolind Oil & Gas Co., Fort Worth, Tex.
2. C. B. Williams, Texas Co., Fort Worth, Tex.
3. Marshall R. Young, Roeser & Pendleton, Inc., Breckenridge, Tex.
4. Don Ligon, Tide Water Oil Co., Houston, Tex.
5. David Frame, Humble Oil & Refining Co., Houston, Tex.
6. Joe S. Russell, Gulf Production Co., Houston, Tex.
7. E. L. Smith, E. L. Smith, Inc., Mexia, Tex.
8. George D. Morgan, Cardinal Oil Co., San Angelo, Tex.

The names of those to represent the drilling contractors for the State of Texas were submitted by the Texas, Louisiana, New Mexico Drilling Contractors Association, which is the representative drilling association in the State of Texas.

We recommend that the following be named to the subcommittee on drilling practices of the State Production Committee of the State of New Mexico:

To represent the drilling branch of the industry:

1. G. C. Conrad, Oil Well Drilling Co., Hobbs, N. Mex.
2. George McQueen, McQueen & Clevenger, Fort Worth, Tex.
3. J. W. Berry, Artesia, N. Mex.

To represent the producing branch of the industry:

1. Van Welch, Artesia, N. Mex.
2. James Creeden, Skelly Oil Co., Hobbs, N. Mex.
3. E. A. Landreth, Fort Worth, Tex.

The names of those to represent the drilling contractors for the State of New Mexico were submitted by the Texas, Louisiana, New Mexico Drilling Contractors Association, which is the representative drilling association in the State of New Mexico.

We recommend that the following be named to the subcommittee on drilling practices of the State Production Committee of the State of Oklahoma:

To represent the drilling branch of the industry:

1. G. A. Manahan, Manahan Drilling Co., Tulsa.
2. Thomas D. Phillips, National Drilling Association and Mead & Phillips Drilling Co., Tulsa.
3. H. L. Sullivan, Loffland Brothers, Tulsa.
4. Dell Schoenfeld, Schoenfeld & Hunter Drilling Co., Oklahoma City, Okla.
5. E. D. Shell, Ardmore, Okla.

To represent the producing branch of the industry:

1. E. J. Nicklos, Continental Oil Co., Ponca City, Okla.
2. A. W. Ambrose, Empire Oil & Refining Co., Bartlesville, Okla.
3. W. K. Whiteford, Barnsdall Oil Co., Tulsa.
4. Louis Campbell, Magnolia Petroleum Co., Oklahoma City, Okla.
5. C. L. McMahon, independent operator, Tulsa.

The names of those to represent the drilling contractors for the State of Oklahoma were submitted by the National Drilling Association, which is the representative drilling association in the State of Oklahoma.

(Signed) E. H. Eddleman,
For Production Subcommittee.

Approved for the Planning and Co-ordination Committee by Wirt Franklin, chairman.

Approved and authorized this thirty-first day of January, 1934.

(Signed) Harold L. Ickes,
Administrator of the Petroleum Industry.

## Ickes Aids Wildcatting by Rules Governing Reports

In compliance with the code of fair competition for the petroleum industry approved by the President, W. C. Mendenhall, director, of the U. S. Geological Survey, has issued instructions to the oil and gas supervisors in the three districts of the Geological Survey covering rules of procedure to be followed in reporting all new fields or pools on all lands within their several districts. This order has the approval of Secretary Harold L. Ickes and Chairman Nathan R. Margold, Petroleum Administrative Board, and reads as follows:

"Article 3, Section 7, of the code of fair competition for the petroleum industry approved by the President provides as follows:

"Section 7. Wildcatting shall not be prohibited because the future maintenance of the petroleum supply depends on new discoveries and new pools, but the shipment of petroleum or the products thereof in or affecting interstate commerce which was produced in a new field or pool which is not developed in accordance with a plan approved by the President is unfair competition and in violation of this code. For the purposes of this code a new field or pool is one discovered after January 1, 1933, and/or in which not more than 10 producing wells have been completed as of the effective date of this code.

"The question of the relationship between the Petroleum Administrative Board and the Geological Survey in securing compliance with this provision of the code has arisen, and the procedure outlined below will hereafter be followed to secure the proper and efficient enforcement of the above Article 3, Section 7, of the code:

"1. The oil and gas supervisors and their representatives will report to the Washington office of the Oil and Gas Leasing Division, all new fields or pools, within the meaning of this section of the code, on all lands within their respective supervisory districts, and will immediately report these new fields or pools to this office, which in turn will report them to the Petroleum Administrative Board. A new pool is defined in Paragraph 1 of the regulations on new pools, issued by the administrator of the code of fair competition for the petroleum industry on December 20, 1933, copy attached. Your attention is invited to the fact that if in a field or pool 10 commercially productive wells had not been completed by September 13, 1933, regardless of the date on which the field or pool was actually discovered, it is a new field or pool within the meaning of Article 3, Section 7, of the code.

"2. After you have reported the new field or pool to this office, you will immediately contact the operator or operators of lands involved in the new field or pool and determine whether a plan of development for the field or pool has been submitted to the administrator for approval under Article 3, Section 7, of the code. Even though further development of a field or pool subject to this provision of the code is not contemplated, it is necessary that a plan of development be submitted or that a statement of existing conditions be filed.

"3. If no plan of development has been submitted for approval as required by the petroleum code, you should then notify the operators of their obligation to immediately submit for approval a plan of development containing the essentials outlined in the regulations for development of new fields or pools. The operators should be notified that two copies of the plan of development must be submitted directly to the administrator, one copy must be submitted to the regional production committee for the district in which the field or pool is located, and one copy must be submitted directly to you.

"4. You should give operators such aid and assistance as you deem proper in formulating these plans, particularly those affecting public and Indian lands subject to your supervision under the mineral leasing acts. When a plan of development has been submitted, you should make an immediate detailed report and recommendation to this office for approval of the proposed plan.

"5. Upon receipt of the plan of development with your report, an appropriate report will be submitted, with recommendations, to the Petroleum Administrative Board."

The oil and gas supervisors of the Geological Survey and their respective supervisory districts are as follows:

John M. Alden, Federal Building, Tulsa, Okla.: Alabama, Arkansas, Kansas, Louisiana, Michigan, Mississippi, New Mexico—all lands south of the base line and all lands north of the base line that are east of the west line of Range 6e, New Mexico Meridian, Oklahoma, and Texas.

H. J. Duncan, Federal Building, Casper, Wyo.: Colorado, Idaho, Montana, Nebraska, New Mexico—all lands north of the base line that are west of the west line of Range 6e, New Mexico Meridian, North Dakota, South Dakota, Utah, Wyoming, and the Hopi and Navajo Reservations in Arizona.

Robert C. Patterson, Box CC, Taft, Calif.: Arizona outside of Hopi and Navajo Reservations, California, Nevada, Oregon, and Washington.

It will be noted that these regulations cover all land within these districts and not only government domain. The supervisors in charge of the different offices and their assistants are ready and willing at all times to help operators at all times in any way possible in carrying out these requirements.

### CARBON REMOVED LESS OFTEN

Only 16 per cent of car owners had carbon removed every 10,000 miles or less in 1933, a survey by the Ethyl Gasoline Corp. shows. In 1931 the percentage was 32. "This is just another indication of the tendency of motorists during the past year to operate their cars as economically as possible," says a report of the survey. Of 3,917 car owners in 146 cities and towns, 849 or 21.8 per cent had carbon removed less frequently than every 15,000 miles; 513 or 13.1 per cent every 12,500 to 15,000 miles; 437 or 11.2 per cent, every 10,000 to 12,000 miles; 344 or 8.8 per cent, every 7,500 to 10,000 miles; 152 or 3.7 per cent, every 5,000 to 7,500 miles; and 150, or 3.7 per cent, every 5,000 miles or less.

# NEWS FOR SALES DEPARTMENTS

## Boys' Prize Contest Ended by Standard of New Jersey

WASHINGTON, D. C., Feb. 10.—Secretary of the Interior Harold L. Ickes, oil administrator, announced after a conference with Walter C. Teagle that the Standard Oil Co. of New Jersey had advised him that it has discontinued its boys' prize contest. Administrator Ickes added that by agreement between attorneys for the oil administrator and the company, the suit of the Government for an injunction against the company to stop the contest accordingly would not be pressed. A hearing on this suit had been set for last Thursday before Justice Daniel W. O'Donoghue in the District of Columbia Supreme Court.

In view of the possible disappointment to the boys who had entered the contest in the hope of earning one of the 50 free trips to Babe Ruth's training camp, offered as prizes, Administrator Ickes stated that arrangements may be made to provide for these trips through sources entirely independent of the Standard Oil Co. of New Jersey or any of the other companies participating in the contest. Expenses incurred prior to the determination to halt the contest will be liquidated by the company.

Plans for providing the trips for the boys will be submitted to Administrator Ickes for approval and after consideration and approval by him, will be announced.

Mr. Teagle stated that the company had inaugurated the contest in the belief that it in no wise violated the prohibitions in the oil code against giving away prizes or premiums.

"The oil administrator entertained and expressed a different opinion and the suit was filed," Mr. Teagle said. "The oil company has concluded to meet the Government's wishes."

Administrator Ickes said:

"The contest has been discontinued. In view of this, I feel that our attorneys may now discontinue the suit."

### ISSUES RESTRAINING ORDER

Secretary of the Interior Harold L. Ickes, the oil administrator, announced the oil administration had been granted temporary restraining orders against several persons in Detroit charged with violating provisions of the oil code prohibiting the giving of premiums or prizes.

The restraining orders were issued by U. S. District Judge E. A. O'Brien of the U. S. District Court for the Eastern District of Michigan, Southern Division, on complaints filed for Administrator Ickes by attorneys of the Petroleum Administrative Board.

The defendants were Harry Victor and Aaron Silverman, the Johnson Oil Co. and the Otto Super Service Station. Some of these were plaintiffs in a suit brought recently in the District of Columbia Supreme Court for an injunction against Administrator Ickes to prevent him from imposing the prohibition on premiums. That injunction was denied by Justice Jesse C. Adkins.

The defendants were found to be giving away glassware and earthenware and other premiums with the sale of gasoline at their filling stations.

### PHILLIPS' MARKET MEETING

AMARILLO, Tex., Feb. 10.—The regional meeting of the Phillips Petroleum Co. marketing department will be held in Amarillo on Thursday, February 22, from 2 to 5 o'clock in the afternoon, closing with a banquet at night.

## Oil Code Rules Revised on Leasing and Loaning of Filling Station Equipment

Because certain equipment manufacturers were unduly penalized in the strict interpretation of Article 5, Rule 7 of the oil code, a redrafting of that portion of the code was approved by Administrator Ickes, February 7. The revision follows:

**Can Not Furnish Pumps**

Rule 7. A. 1. Refiners, distributors, jobbers, wholesalers, or retailers who market either gasoline, motor fuels, kerosene, burning oils or naphtha, shall not sell to consumers of petroleum products or to anyone engaged in the sale of petroleum products, except as specifically provided in Clause C hereof, any dispensing pumps, tanks used for the storage or display of gasoline, motor fuels, kerosene, burning oils, or naphtha (except tanks used for burning oils and forming an integral part of the burner installation and directly connected thereto), air compressors, air scales, reels and air towers, automobile lifts, greasing pits and racks, flood lights, yard lights, light poles or material for driveways, buildings or canopies.

2. Except as otherwise provided in Rules 8 and 9 of this article, refiners, distributors, jobbers, wholesalers or retailers shall not hereafter install or pay for the installation of any equipment specifically mentioned in Appendix "A" located or to be located on the premises of any consumer or anyone engaged in the sale of petroleum products.

**Expiration of Contract**

3. Equipment of the kind and type specifically mentioned in Appendix "A," furnished, loaned or leased prior to September 2, 1933, by any refiner, distributor, jobber or wholesaler, or to be installed with any retailer or consumer, must at the expiration of any contractual relation and on the request of such retailer or consumer, be sold by such refiner, distributor, jobber or wholesaler to such retailer or consumer, or, in the absence of a sale to such retailer or consumer as herein provided, must be sold by the refiner, distributor, jobber, or wholesaler who has made the loan, lease or license, to any other refiner, distributor, jobber or wholesaler who is about to begin supplying petroleum products to such retailer or consumer, on the request of such other refiner, distributor, jobber or wholesaler, at the original price, plus actual cost of installation, less a depreciation at the rate of 15 per cent per annum, except where other rates of depreciation or other methods of computation are specifically shown in Appendix "A," but in no event at a price lower than that fixed in Appendix "A." Where a fixed minimum price is not shown in Appendix "A," the sale price shall not be less than an amount equal to one year's depreciation, based on the invoice price and cost of installation of the equipment; if the original invoice or cost is not available, the minimum price shall be mutually agreed upon. Refiners, distributors, jobbers or wholesalers may elect, if mutually agreeable, to purchase and/or sell equipment on the basis of the minimum prices where established in Appendix "A" instead of at the original invoice price plus actual cost of installation, less depreciation. In the event of a purchase as herein provided, by such other refiner, distributor, jobber or wholesaler, such equipment may be leased, loaned or licensed to the retailer or consumer at such location, by any new supplier subsequently acquiring title thereto.

4. In the event of a sale and/or purchase of equipment as provided in Clause A, Paragraph 3, of this rule and in the absence of the sale of all of the equipment to the retailer or consumer, the equipment must be sold by the outgoing supplier or suppliers and purchased by the incoming supplier or suppliers as provided below:

**Change in Suppliers**

(a) Where only one present supplier is to be replaced by only one incoming supplier, the outgoing supplier shall upon request of the new supplier sell its equipment in its entirety and the incoming supplier shall purchase all such equipment.

(b) Where only one present supplier is to be replaced by two or more incoming suppliers, the outgoing supplier must upon request of the incoming suppliers sell its equipment in its entirety and the incoming suppliers shall purchase all such equipment.

(c) Where more than one present supplier is to be replaced by only one supplier, the incoming supplier shall designate the outgoing supplier or suppliers whose equipment he desires to purchase, and the incoming supplier shall purchase all of the equipment loaned by such designated outgoing supplier or suppliers. Equipment loaned by an outgoing supplier or suppliers not designated by the incoming supplier as being purchased shall be removed.

(d) Where only one present supplier is to share an account with one or more incoming suppliers, the present supplier shall retain the equipment necessary to market the products for which he has contracted with the retailer or consumer. Any equipment which the present supplier does not require to fulfill his contractual obligation must be purchased by the incoming supplier or suppliers who will mutually agree as to the equipment each will purchase.

(e) Items of equipment, such as grease gun display boards and other items which carry prominent advertising which cannot be readily effaced by practical means need not be sold by outgoing supplier or purchased by the incoming supplier.

(f) Whenever request is made to purchase equipment which is installed at a location in compliance with the rules hereinabove set forth, such request must be complied with within 20 days.

**Sell on Common Price List**

B. Any sales of new equipment by any refiner, distributor, jobber, wholesaler, or retailer of petroleum products must comply with the following rules:

1. Sales shall not be conditioned on the purchase or use of petroleum products, or vice versa; prices and terms of sale of the equipment to customers purchasing both equipment and petroleum products, shall not be more favorable than to customers purchasing equipment only, or vice versa.

2. Sales of new equipment (not previously in use) shall be made upon the same terms and conditions with respect to price, discount and credit terms, and special allowances as shown by the latest published price schedules used by equip-

(Continued on Page 55)

## Must Have Executive Work and Pay to Get Exemptions

Secretary of the Interior Harold L. Ickes, the oil administrator, today announced approval of an interpretation of the labor sections of the oil code which provides that the exemption of executives and supervisors from the maximum hour and minimum wage conditions shall not apply to any employe receiving less than $35 a week.

This exemption is not applicable to filling station employes, but covers all other activities in the industry.

Administrator Ickes explained that this ruling makes applicable to the oil code the general interpretation of the term "executives and supervisors" which has been issued by the National Recovery Administration to govern other codes containing similar provisions.

The interpretation provides that employes who work with their own vehicles out of bulk plants on a commission basis, without any minimum guarantees, shall be exempted from the minimum wage and maximum hour provisions, regardless of their compensation, since such employes are not ordinarily classed as labor, but rather as sales agents of the company.

The text of the interpretation follows:

Article 2, Section 1.

It is the intention that the exemption as to hours of work provided for in this section shall apply only to those who exercise real executive or supervisory authority, therefore the exemption granted in this section to persons classified as executives and supervisors, shall not apply to any employe receiving less than $35 per week.

Article 2, Section 2.

It is the intention that the exemption as to hours of work provided for in this section shall apply only to those who exercise real executive or supervisory authority, therefore the exemption granted in this section to persons classified as executives and supervisors shall not apply to any employe receiving less than $35 per week:

Provided, however, that all persons who furnish their own vehicles working out of bulk plants on a commission basis without minimum guarantees, shall be entitled to the exemption granted in this section regardless of the amount of their compensation.

### EAST TEXAS TRUCK LINE

FORT WORTH, Tex., Feb. 10.—A campaign to bring all gasoline truckers into line on NRA code hours and wages as an aid to the oil code enforcement drive was opposed by leaders among the group.

The action followed a meeting of wholesalers, including truckers and jobbers, called by T. E. McGlathery of the state marketing committee. Under the code gasoline truck drivers have a maximum week of 40 hours. With a round trip to the East Texas Field requiring about 9½ to 10 hours, only four can be made by one driver during one week. Many of the drivers, however, are making seven a week, it was reported. Some of the truckers have been paying $1.50 to $2.50 a trip, which, under the four-a-week schedule, would be considerably below the minimum.

An investigation of conditions in the trucking end of the business was promised by Cullen A. Phillips, special agent of the Bureau of Investigation of the Department of the Interior. G. G. Rumley and R. M. Hanna of the wholesalers conferred with Special Assistant U. S. Attorney General LaVergne F. Guinn regarding ending such violations as part of the fight on code breaches in this section.

# Tank Car Gasoline Market in Chicago Is Steadier and Sentiment Optimistic

BY SPECIAL CORRESPONDENT

CHICAGO, Feb. 12.—With oil marketing difficulties and uncertainties being ironed out slowly but steadily, a fair degree of optimism persists in the Chicago district and in the central states generally with regard to the outlook for gasoline and other products in wholesale and retail dealings. New agreements and interpretations on the code and the marketing and purchase instruments are regarded as steps in the general progress toward stabilization.

In actual ruling prices, tank car gasoline is little changed from a week earlier. The market has steadied itself and has leveled out. The recent flurry of buying orders, both contract and spot, has subsided and it now remains to be seen what the market can do. Jobbers are credited with holding a little more gasoline than formerly, as result of their recent large-scale buying. In consequence the market has an opportunity to show what it can do without any great amount of new support.

Surveys around the start of the week indicated that a few sources were again near the uncomfortable position of making necessitous offers of gasoline. Some refiners apparently would like to sell more low-octane material than they have been in the last few days, but they are not dumping it. Most of them are heartened by the fact that the gasoline season is no great distance away, and if a fair degree of control of operations continues they believe demand will be sufficient to bring about a firm market position over the coming months.

### January Exceptionally Good Month

All responsible reports indicate that January was an exceptionally good month for gasoline consumption. Weather in early February has not been particularly favorable however. Still the retail business in key points seems to be holding up well. The trade is heartened by the heavy sales of motor cars and its prospective bearing on future gasoline demand. So far as can be determined, the trend is still in the direction of quality gasoline. The finding of better-than-third-grade gasoline being supplied for third-grade material in the Washington price-cutting situation conforms rather well with what the trade here understands has been common practice in many regions, not merely where there have been price disturbances.

Car lot marketers in this district report they are not receiving any large amount of offers from refiners to sell motor fuel, although offers to buy also are not too plentiful. All in all, it appears to be a stalement. The fact that recently placed export and coatswise orders have kept refiners in some districts busy has probably aided the market.

Central states tank wagon and service station markets have been relatively steady so far as principal points are concerned, although there have been reductions in smaller and outlying towns. Third-grade material is affected chiefly. Much interest has greeted the new ruling concerning discounts from tank wagon prices. Many believe it will help stabilize general market conditions.

### Cold Weather Helps Heating Oils

Cold weather of the last few days has served to stimulate the taking up of some of the cheapest heating oils, but in general the market is none too strong. Distillates have been offered more freely from various sources into this territory. More refiners report they are switching from high grade house heating oils to kerosene. Zero gas oils right along have been a firm classification, but they too new seem more plentiful. The high grade fuels which have led the market in strength for months, such as No. 3, are easier here, having been pushed upon the market by a few sellers.

### Beginning to Store Kerosene

Kerosene is now subject to more interest, although prices have not been aided to an important degree. Some refiners are putting material into storage for the coming season.

### Industrial Fuel and Gas Oils Firm

The industrial fuel and gas oils seem to be closely enough geared to crude oil to permit them to hold steadier than the high-grade zero items. In any event, they remain dull but firm, and are being favored with a certain amount of business, although it is spotty in character. Some industrial concerns in the central states, such as steel companies, have taken out larger quantities of heavy fuel recently. Prices vary with destination. Some material has been available

(Continued on Page 54)

## Crude Oil Prices

(Continued from Page 25)

Effective September 29 in Salt Flat by Shell Petroleum Corp.

### Rocky Mountain States

Illes, light (Sept. 29, 1933) ..... $.96
Illes, heavy (Sept. 29, 1933) ..... .90
Florence, Colo. (June 17, 1933) ..... .30
Fort Collins and Wellington, Colo. (June 17).....(See Salt Creek prices)
Big Muddy (Sept. 29, 1933) ..... 1.01
Frannie, light (Sept. 29, 1933) ..... .87
Frannie, heavy (Sept. 29, 1933) ..... .62
Salt Creek and LaBarge (Sept. 9, 1933) See Stanolind Mid-Continent price schedule
Grass Creek, light (Sept. 29, 1933) ... 1.18
Grass Creek, heavy (Dec. 15, 1932) ... .45
Elk Basin (Sept. 29, 1933) ..... 1.18
Rock Creek (Sept. 29, 1933) ..... 1.02
Dutton Creek (July 8, 1933) .....
.....See Mid-Continent gravity prices
Lance Creek (Dec. 16, 1932) ..... .92
Poison Spider (Mar. 5, 1931) ..... .70
Hudson (June 2, 1931) ..... .65
Lander (Mar. 5, 1931) ..... .40
Rex Lake (Feb. 22, 1930) ..... 1.10
Osage (Jan. 18, 1933) ..... .52
Lost Soldier (Sept. 30, 1933) ..... .88
Hamilton Dome (Dec. 16, 1932) ..... .25
Torchlight (Sept. 29, 1933) ..... 1.18
Greybull (Sept. 29, 1933) ..... 1.18
Pondera ..... 1.15
Sunburst (Sept. 29, 1933) ..... 1.85
Cat Creek, Montana ..... 1.07
Hogback (Sept. 29, 1933) ..... 1.11
Lea County, N. Mex. (Sept. 29, 1933).. .75
Maljamar (Sept. 29, 1933) ..... .70
Artesia-Jackson (Dec. 1, 1933)* ..... .75

Note—Salt Creek, Torchlight, Elk Basin, Grass Creek, Frannie, Greybull, Hogback and Iles by Stanolind Oil & Gas Co. Elk Basin, Grass Creek light, Big Muddy, Rock Creek and Sunburst by Ohio Oil Co. Lost Soldier posted by Producers & Refiners Corp. Artesia, Jackson and Maljamar posted by Continental Oil Co. Lea County, effective September 29, 1933, by Humble Oil & Refining Co. and other buyers; Fort Collins, Wellington, Orchard, Florence, Big Muddy, Cat Creek, Rattlesnake and Table Mesa by Continental Oil Co. Osage posted by Arro.
*Continental Oil Co.

### North Louisiana and Arkansas

Smackover, Ark. (all grades) ..... $.70
Tullos-Urania, La. (Jan. 13, 1934) .... .87
Nevada, Ark. (Sept. 29, 1933) ..... .60
East El Dorado (Sept. 29, 1933) ..... .70
Other fields.....(See gravity table)

Note—Smackover: Effective September 29, 1933, Texas Co., Magnolia Petroleum Co., Standard of Louisiana, Louisiana Oil Refining Corp., Gulf Refining Co. and Phillips Petroleum Co. East El Dorado posted by Magnolia Petroleum Co. and Gulf Refining Co., Nevada by Stanolind Oil Co. of Louisiana. Urania posted by H. L. Hunt, Inc., and Louisiana Oil Refining Co.

### Eastern States

TIDE WATER PIPE CO.
(Effective October 4, 1933)
Bradford, Pa. ..... $2.45
Allegany, N. Y. ..... 2.45

SOUTH PENN OIL CO.
(Effective October 4, 1933)
Pennsylvania Grade Oil in National Transit Lines (Bradford Field)..... $2.45
Pennsylvania Grade Oil in Southwest Pennsylvania Lines ..... 2.13
Pennsylvania Grade Oil in Eureka Pipe Line lines ..... 2.07
Pennsylvania Grade Oil in Buckeye Pipe Line lines (Jan. 29, 1934) ..... 1.97
Corning Grade Oil in Buckeye Pipe Line Co.'s lines (Oct. 2, 1933)..... 1.32

PENNZOIL CO.
(Effective October 4, 1933)
Pennsylvania Grade Oil in National Transit Lines:
Group A ..... $2.37
Includes Cochran, Franklin, Hamilton and Doolittle districts.
Group B ..... 2.36
Includes Titusville district.
Group C ..... 2.35
Includes Turkey and Tidioute districts.
Group D ..... 2.24
Includes Bear Creek and Porkey districts.
Group E ..... 2.33
Includes Edeneau, Bull Creek, Rough Run, Carbon, Dipner, Bredin, McJunkin, Jameson, Kennerdell, Emlenton, Tiona, Lacy and Kinzua districts.
Price depends on length of pipe line haul to plant at Oil City.

PURE OIL CO.
(Effective October 4, 1933)
Cabin Creek, W. Va. ..... $2.17
Bradford Hollow, W. Va. ..... 2.17
Kelly Creek, W. Va. ..... 2.17

### Middle Western States

OHIO OIL CO.
(Effective September 29, 1933)
Lima ..... $1.30
Illinois (Jan. 5, 1934) ..... 1.13
Princeton, Ind. (Jan. 5, 1934) ..... 1.13
Plymouth ..... Shut in
Western Kentucky ..... 1.13
Midland, Mich. (Sept. 30, 1933)* ..... 1.03
Oceana, Mich. (Oct. 5, 1933) ..... .90
Somerset, Ky. (Sept. 30, 1933) ..... 1.13
Hart County, Ky. (Oct. 1, 1933) ..... 1.18

*Posted by Pure Oil Co. Producers Pipe Line Co. pays 5 cents per barrel over Pure Oil Co.'s posted price. Somerset, Ky., crude purchased by Ashland Refining Co., Ashland, Ky., and posted price includes premium. Hart County, Kentucky, crude purchased by Stoll Refining Co. Oceana posted by Old Dutch Refining Co. and Naph-Sol Refining Co.

### Canada

Ontario (September 9, 1933):
Petrolia* ..... $2.10
Oil Springs ..... 2.17
Turner Valley (Dec. 9, 1933):†
Clear naphtha ..... $2.15
Discolored naphtha ..... 2.01
Crude oil, 50 gravity ..... 2.06
Crude oil, 45 to 49.9 ..... 2.07
Crude oil, 40 to 44.9 ..... 1.50

*Imperial Oil, Ltd. †Imperial Oil, Ltd., and Regal Oil & Refining Co.

### Mexico

Panuco* ..... $.72

*F.o.b. ship, based on December transactions and exclusive of production and export taxes and bar dues.

# California Crude Oil Prices

STANDARD OIL CO. OF CALIFORNIA
(Effective September 6, 1933)

For current purchases of crude oil at the well (unless otherwise specified). (All gravities above those quoted take highest price offered in that field.)

| Gravity— | Long Beach | Seal Beach, Alamitos Heights | Huntington Beach | Inglewood | Playa del Rey | Olinda, Brea Canyon | Athens-Rosecrans | Torrance | Richfield | Whittier, La Habra | Montebello | Santa Fe Springs | La Habra-Coyote | Midway-Sunset, Elk Hills, Buena Vista Hills | Lost Hills | Coalinga | Coyote |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 14-14.9 | $.65 | $.65 | $.65 | $.65 | $.65 | $.65 | .... | $.65 | $.65 | $.65 | $.65 | .... | $.65 | $.57 | $.57 | $.57 | $.65 |
| 15-15.9 | .65 | .65 | .69 | .69 | .66 | .69 | .... | .66 | .65 | .65 | .65 | .... | .65 | .... | .... | .... | .65 |
| 16-16.9 | .66 | .65 | .72 | .73 | .69 | .72 | .... | .69 | .67 | .68 | .65 | .... | .65 | .... | .... | .... | .66 |
| 17-17.9 | .69 | .65 | .75 | .76 | .73 | .76 | .... | .72 | .70 | .71 | .65 | .... | .68 | .... | .... | .... | .68 |
| 18-18.9 | .72 | .65 | .78 | .80 | .76 | .79 | .... | .75 | .74 | .74 | .65 | .... | .71 | .61 | .61 | .59 | .71 |
| 19-19.9 | .75 | .65 | .81 | .83 | .80 | .82 | .... | .78 | .78 | .78 | .65 | .... | .74 | .64 | .65 | .62 | .74 |
| 20-20.9 | .78 | .68 | .83 | .87 | .83 | .85 | .... | .81 | .82 | .81 | .66 | .... | .78 | .67 | .69 | .65 | .78 |
| 21-21.9 | .81 | .72 | .86 | .90 | .87 | .88 | .... | .83 | .85 | .84 | .69 | $.72 | .81 | .70 | .73 | .68 | .81 |
| 22-22.9 | .84 | .76 | .89 | .94 | .90 | .92 | .... | .85 | .89 | .87 | .72 | .76 | .84 | .73 | .76 | .72 | .84 |
| 23-23.9 | .88 | .81 | .92 | .97 | .94 | .95 | $.83 | .89 | .93 | .90 | .76 | .79 | .87 | .77 | .79 | .75 | .87 |
| 24-24.9 | .91 | .85 | .95 | 1.01 | .97 | .98 | .86 | .92 | .97 | .93 | .80 | .83 | .90 | .81 | .83 | .78 | .90 |
| 25-25.9 | .94 | .89 | .98 | .... | 1.00 | 1.01 | .90 | .95 | 1.00 | .... | .85 | .87 | .93 | .85 | .86 | .81 | .93 |
| 26-26.9 | .97 | .93 | 1.01 | .... | 1.04 | 1.04 | .94 | .98 | 1.04 | .... | .89 | .90 | .96 | .89 | .88 | .... | .96 |
| 27-27.9 | 1.00 | .98 | 1.04 | .... | .... | 1.07 | .97 | .... | 1.08 | .... | .... | .94 | .99 | .93 | .91 | .... | .99 |
| 28-28.9 | 1.03 | 1.02 | 1.07 | .... | .... | 1.10 | 1.01 | .... | 1.11 | .... | .... | .98 | 1.02 | .97 | .94 | .... | 1.02 |
| 29-29.9 | 1.06 | 1.05 | 1.09 | .... | .... | .... | 1.04 | .... | 1.16 | .... | .... | 1.01 | 1.05 | 1.01 | .97 | .... | 1.05 |
| 30-30.9 | 1.09 | 1.10 | 1.12 | .... | .... | .... | 1.08 | .... | .... | .... | .... | 1.05 | 1.09 | 1.05 | 1.00 | .... | 1.09 |
| 31-31.9 | .... | .... | .... | .... | .... | .... | 1.12 | .... | .... | .... | .... | 1.08 | 1.12 | 1.09 | .... | .... | 1.12 |
| 32-32.9 | .... | .... | .... | .... | .... | .... | 1.16 | .... | .... | .... | .... | 1.12 | 1.16 | 1.13 | .... | .... | 1.16 |
| 33-33.9 | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | 1.16 | 1.18 | 1.17 | .... | .... | 1.18 |
| 34-34.9 | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | 1.19 | 1.21 | .... | .... | .... | 1.21 |
| 35-35.9 | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | 1.23 | .... | .... | .... | .... | .... |
| 36-36.9 | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | 1.26 | .... | .... | .... | .... | .... |
| 37-37.9 | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | 1.30 | .... | .... | .... | .... | .... |
| 38-38.9 | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | 1.34 | .... | .... | .... | .... | .... |

**Additional Standard Oil Quotations**

**Elwood Terrac**—F.o.b. ship, 23 degrees, $1.03; 34 degrees, $1.06; 35-35.9, $1.09; 36-36.9, $1.12; 37 degrees and over, $1.15.
**Newhall**—14 degrees and over, 57 cents.
**McKittrick and Kern River**—14 degrees and over, 57 cents.
**Wheeler Ridge**—14 to 17.9 degrees, 57 cents; 18-18.9, 58 cents; 19-19.9, 61 cents; 20-20.9, 64 cents; 21-21.9, 67 cents; 22-22.9, 70 cents; 23-23.9, 73 cents; 24-24.9, 76 cents; 25 degrees and over, 79 cents.
**Kettleman Hills**—33-33.9 degrees, 93 cents; 34-34.9, 96 cents; 35-35.9, 99 cents; 36-36.9, $1.02; 37-37.9, $1.05; 38-38.9, $1.08; 39 degrees and over, $1.11.

The Texas Co. posted in Shields Canyon, South Mountain and Santa Paula as follows: 14 to 17.9, 57 cents; 3 cents added for each degree up to and including 26-26.9 degrees at 84 cents; then 4 cents added for each degree up to and including 30 degrees and over at $1. Company posts Standard Oil Co.'s Montebello prices in Montebello and North Whittier, and posts Standard Oil Co. prices in Signal Hill, Alamitos Heights, Huntington Beach, Torrance, Richfield and Santa Fe Springs, all effective September 6.

General Petroleum Co. posts Standard Oil Co. prices in Athens, Rosecrans and Signal Hill; Alamitos Heights up to 26-26.9; Santa Fe Springs up to 35-35.9; Richfield up to 25-25.9; Brea Canyon and Olinda up to 25-25.9, and Torrance up to 25-25.9.

Union Oil Co., effective September 6, posts same prices as Standard Oil Co. in all fields in which both purchase, excepting that in Athens-Rosecrans, Union Oil Co. posts 21-21.9, 72 cents, and 33-33.9, $1.18; 34-34.9, $1.21, and 35-35.9, $1.24.

Associated Oil Co., effective September 6, posted same prices for the same grades as Standard Oil Co. of California, excepting that in some fields its gravity scale stops as follows: Huntington Beach, 26 degrees and over; Seal Beach and Alamitos Heights, 26 degrees and over; Coyote Hills, 23 degrees and over; Richfield, 25 degrees and over; Torrance, 25 degrees and over; Inglewood, 24 degrees and over; Santa Fe Springs, 35 degrees and over; Midway-Sunset, Elk Hills, Buena Vista Hills, 30 degrees and over. Also Associated pays 52 cents for oil of 11 to 13.9 gravity in McKittrick, Kern Front, Kern River, Midway-Sunset, Elk Hills, Buena Vista Hills and Coalinga.

## Late Fields

### ARKANSAS

HOPE, Ark., Feb. 13.—Clark and others are moving in a rotary on the G. W. Jones farm in the SE of Section 11-14s-24w, 1½ miles north of Patmos and about 10 or 11 miles south of Hope in Hempstead County, Arkansas. The test is to go to 3,500 feet, and is located on a 12,000-acre block.

The nearest test was drilled by the White Oil Corp. one-half mile to the east of the new location. That test went to 3,000 feet.

### OKLAHOMA

The crew on Springrose Drilling Co. and Watchorn's No. 1 Edwards, C SE SE Section 19-11-1, Newalla district, Oklahoma County, swabbed down to the bottom of the oil column on Monday. It is believed the hole bridged just below the deepest casing point, as on Sunday the swab failed to lower the fluid level. The oil is coming from Hunton lime and there is very little gas.

Anderson, Kerr and others' No. 1 Katy, NW NE NW Section 3-11-3w, in the U-7 zone in the Oklahoma City Field, looks better than other wells drilled in that part of the city. The well flowed freely and cleaned itself on Monday and was then shut in. Other wells nearby failed to flow when bailed down.

Trans Mississippi Oil Co. and others are rigging up No. 1 Miller, NE NW SE Section 15-11-3w. It is in the Fruitland Addition of Oklahoma City.

## Blaffer Sounds Note of Confidence in Oil Future

HOUSTON, Tex., Feb. 13.—Earnings of the Humble Oil & Refining Co. for 1933, before deducting taxes and dividends, will approximate $2.40 per share for the 9,000,000 shares, according to the statement of R. L. Blaffer, president, presented at the annual meeting of stockholders Monday. Final figures, however, are not available at this time.

All directors, namely Mr. Blaffer, H. C. Weiss, E. E. Townes, James Anderson, Wallace E. Pratt and John R. Suman, were re-elected at the meeting.

In his statement, Mr. Blaffer declared that the past year had marked a turning point in the oil industry, which may prove significant in bringing about the stabilization in the industry.

He added, "We have emerged from a condition bordering on chaos and threatened collapse of all conservation effort during the first half of the year to a fair degree of progress toward orderly production and termination of the wasteful and ruinous practices of the past. The outlook for 1934 is bright for a continuation of the progress already made."

The statement showed that the company had made capital expenditures of approximately $30,000,000 during 1933, of which $10,000,000 was spent in acquisition of producing properties and undeveloped acreage and that it now has more than 5,000,000 acres, of which 47,235 acres constitute proven land. The company produced 45,022,496 bbls. of oil, of which part its share was 34,982,350 bbls., this being from 2,347 sole interest wells and 1,293 part interest wells, with the value of the company's share being $20,955,597.70. Purchases of crude oil totaled 57,255,354 bbls. A total of 35,006,000 bbls. was consumed by the company's own refineries. A total of 645 wells were drilled, of which only 52 were dry holes.

### EASTERN PRODUCTION DIVISION

Pennsylvania State College will be host to the spring meeting of the eastern district, Division of Production, of the American Petroleum Institute, on April 6 and 7, and State College officials are co-operating in devising a program. Heretofore the mineral industries division of Pennsylvania State College has held an annual petroleum and natural gas conference. This year the Institute's district meeting is substituted, and it is anticipated those who have been participants in the conference will attend.

# Ben E. Lindsly Addresses Meeting of Mid-Continent A. I. M. E. in Tulsa

The annual meeting of the Mid-Continent Section of the A.I.M.E. Petroleum Division took the form of a dinner and technical session held in the ballroom of the University Club, Tulsa, and attended by about 35 members and guests. The speaker of the evening was Ben E. Lindsly, senior petroleum engineer, U. S. Bureau of Mines Experimental Station, Bartlesville, Okla. His subject was "Solubility of Natural Gas in Crude Petroleum," and he discussed data secured by the laboratory examination of samples of oil and gas secured by sampling at the bottom of a well newly completed in the Crescent Field, Logan County, Oklahoma.

L. L. FOLEY
Chairman, Mid-Continent Section A.I.M.E.

The election of officers was by ballot and L. L. Foley is the new chairman for this section. Mr. Foley is petroleum engineer for the Mid-Kansas Oil & Gas Co., Tulsa. He is a fellow of the Geological Society of America, and member of the American Association of Petroleum Geologists, American Association for the Advancement of Science and the American Petroleum Institute. Mr. Foley is a graduate from the University of Minnesota with degree of mining engineer and after spending three years in Trinidad, West Indies, he came back to the Mid-Continent and has been with the Mid-Kansas Oil & Gas Co. for the past seven years.

The other officials are, I. W. Alcorn, Oil Well Supply Co., first vice president; M. L. Terry, Texas Co., second vice president; E. A. Hanson, U. S. Geological Survey, secretary-treasurer; with an executive committee made up of H. H. Wright, Gypsy Oil Co.; Harry F. Wright, Williams Brothers Well Treating Corp.; D. L. Trax, Gypsy Oil Co., and C. B. Mapes, acting secretary, Mid-Continent Oil and Gas Association. All officials reside in Tulsa.

### BUYS AEROLAND OIL

FORT LAUDERDALE, Fla., Feb. 13. Standard Oil of Kentucky has purchased the Aeroland Oil Co., a Miami concern at Port Everglades, and will increase the facilities on an extensive scale, using Port Everglades for the distribution point for petroleum products in southeast Florida.

## The Oil Man's Calendar

### February

15-16—Oklahoma City, Okla., A.P.I., Mid-Continent district meeting, Division of Production, Biltmore Hotel.

19-22—New York, Annual meeting, A.I.M.E., Engineering Societies Building.

21-22—Peoria, Ill., Illinois Petroleum Marketers, Pere Marquette Hotel.

27-28—Indiana Petroleum Association, Hotel Severin, Indianapolis, Ind.

Louisville, Ky., Kentucky Petroleum Marketers Association.

### March

5-9—Washington, D. C., American Society for Testing Materials, Committee D-2.

5-9 — Philadelphia, Pa., American Oil Burner Association.

5-9—Group meetings, A.S.T.M. committee, Wardman Park Hotel, Washington, D. C.

7—A.S.T.M. regional meeting, at Wardman Park Hotel, Washington, D. C.

12-14—Michigan Oil Men's Association, Hotel Statler, Detroit, Mich.

22-24—Dallas, Tex., American Association of Petroleum Geologists annual meeting, Baker Hotel.

26-29—Miami, Fla., American Chemical Society.

### April

16-21 — Houston, Tex., Oil Equipment and Engineering Exposition.

(?)—National Oil Marketers Association.

Philadelphia, Pa., American Oil Burner Association.

### May

1-4 — Washington, D. C., U. S. Chamber of Commerce.

3-4-5 — Kansas City, Mo., twelfth Midwest regional meeting of American Chemical Society.

9-10-11 — Tulsa, Natural Gasoline Association of America, New Hotel Tulsa.

12-19—Tulsa, International Petroleum Exposition.

14-21—American Institute of Chemical Engineers (tentative), Waldorf-Astoria, New York.

17-18—Roanoke, Va., Virginia Oil Jobbers Association, and Virginia Oil Men's Association.

22-24 — Pittsburgh, Pa., midyear meeting, A. P. I. divisions, William Penn Hotel.

### June

14-15—Northwest Petroleum Association, North Dakota division, place to be decided later.

25-29—A.S.T.M. annual meeting, Chalfonte-Haddon Hall Hotel, Atlantic City, N. J.

28-29—State College, Pa., Pennsylvania Grade Crude Oil Association.

28-29 — Charleston, W. Va., West Virginia Oil Marketers Association.

### September

9 — Wernersville, Pa., American Trade Association executives.

10-14 — Cleveland, Ohio, American Chemical Society.

19-21 — Atlantic City, N. J., National Petroleum Association.

### November

12-15—Dallas, Tex., annual meeting, A.P.I.

## Federal Court Decisions in Texas Regulation Cases

(Continued from Page 13)

the best methods of detecting illegal oil. Such a Federal tax would give Federal investigators in the field the right to go on properties and check refinery records. The tax will have to be borne by all operators, thereby putting an added cost on production for the legal oil operators as well as the violators, but the producers would no doubt be more than glad to pay this small extra cost if it will aid in checking and eliminating the violator. Only by eliminating violators can the price of crude oil be maintained.

## Neither Sight Nor Touch Is Guide in Choosing Oil

"One reason why the public is helpless in the matter of oil selection and must depend upon the oil refiner for the proper quality is because even an expert cannot judge the quality of an oil by sight or touch," says Sydney Bevin, chief automotive engineer of the Tide Water Oil Co. "An oil at atmospheric temperature is one thing and an oil in a modern automobile engine operating with a running temperature of between 180° to 200° F. is another."

"It probably will be impossible ever to make the general motoring public realize the amount of money and research which has gone into the development of motor oil during the past few years," says Mr. Bevin.

"Since it is impossible to tell by sight or touch the quality of an oil, the public is forced to rely upon the word of the dealer and manufacturer for his information. Naturally, oil has to fall then into the category of products whose only basis for judgment is the reputation of the manufacturer. It is poor economy to buy cheap oil. The difference in the price of the oil is made up many times over in the cost of engine wear and in the satisfaction of performance. The chemistry of modern oils is a highly technical subject and no matter how it is attempted, the full story of oil development can never be made clear to the general public. Therefore, as far as the car owner is concerned, it comes back to a matter of buying from a reliable source."

### BUY SCHOOL LAND LEASES

OKLAHOMA CITY, Okla., Feb. 12.—Continental Oil Co. and the Stanolind Oil & Gas Co. were awarded oil and gas leases on 130 acres of Langston school land in Logan County by the school land commission Monday.

The Continental, with a bid of $17,382, was successful bidder on the E half SE of Section 14-17-1w. Stanolind bid $3,522 on 20 acres in the NE SW of Section 13-17-1w; $4,022 for 20 acres adjoining and $2,011 for 10 acres in SW NW SW of Section 13-17-1w.

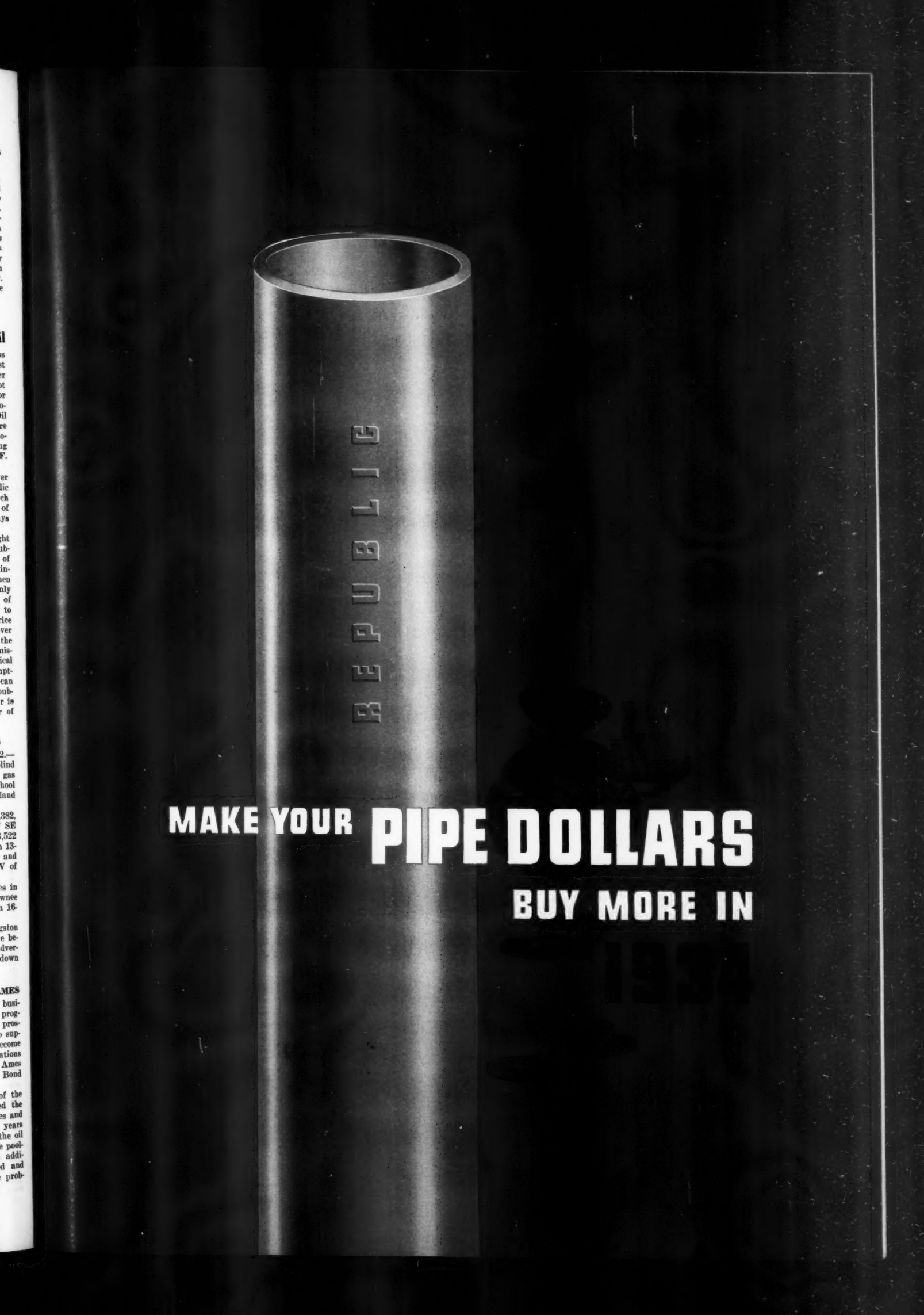
All bids were rejected on 80 acres in the N half NE Section 36-20-7e, Pawnee County, and for 300 acres in Section 16-9-4e, Pottawatomie County.

The property adjoining the Langston Negro university was advertised once before, but a technical error in the advertising caused the Texas Co. to turn down a bid of $16,200 on the 80 acres.

### OIL IMPROVING, SAYS C. B. AMES

NEW YORK, Feb. 10.—The oil business under its NRA code has made progress and further improvement is in prospect if the oil industry continues to support it, and the courts do not become "too legalistic" in their interpretations of the code's provisions, Judge C. B. Ames told the members of the New York Bond Club at its luncheon today.

Judge Ames, who is chairman of the board of the Texas Corp., outlined the actions taken by oil-producing states and the Federal Government in recent years to bring about the stabilization of the oil industry. He spoke favorably of the pooling and marketing agreements as additional proposals which, if adopted and enforced, would aid in solving the problems of the industry.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# Oklahoma City Production Engineers Collaborate in General Discussion of Many Field Problems

By HERBERT F. BEARDMORE and H. O. HARDER
Petroleum Engineers, Indian Territory Illuminating Oil Co., Oklahoma City, Okla.*

Sand pressures in the Wilcox and Simpson below Wilcox zones of the Oklahoma City Field are rapidly declining to the point where natural flow will cease and where normal gas lift cannot be applied. There is concern at present among the field operators as to the most effective mechanical means for lifting the oil. Numerous devices have been perfected in recent years and new methods are constantly being developed. The number of methods available make selection difficult.

The problem reaches greatest importance when it is considered that later developments may perfect a production method that will be far superior to those used on early wells and may force an additional investment on those early equipped wells.

Many devices that have come to the attention of the Oklahoma City Field operators are described in this paper. The discussion is divided into three parts: Methods and devices now in use; those that have been or are being tested; and those that might be adapted. Methods such as gas lift, that may be in general use in the field, are described because they are still future methods for some operators.

The number of installations and progress in testing various devices provides an expression of the conclusions reached by the operators regarding the most suitable production methods. Allowance must be made for different conditions to be met by various operators.

There are field conditions, other than those inherent to deep production, that should be considered when applying or developing production devices for these deep wells. Conditions causing most difficulty are paraffin deposition, and gas produced with the oil. Another is the possibility for large volume wells. The length of open hole unusual for the Mid-Continent may limit the height above the bottom of the sand that a device can be run. Comparatively straight holes and good grade of casing will prove a benefit. Operators are fortunate that to date there has been no sign of corrosion from any source, although the effect of erosion and cutting caused by loose sand has been costly. Emulsions have in general been easily treated.

### Paraffin Problem

The paraffin problem is growing more severe as the field declines. Paraffin deposition during natural flow in either tubed or untubed wells frequently shuts off the flow completely, and use of gas lift further aggravates the condition. Paraffin usually forms in the top 1,500 feet of hole, but an accumulation will be found wherever there is a cooling action. Sand carried in the paraffin acts as an abrasive on any equipment run into the hole that fits tightly against the casing. Bow springs for setting devices, such as packers, are frequently worn through by this action on one trip to bottom.

Large amounts of gas have always been troublesome and even though in smaller volumes, will continue to be an important consideration until late in the life of the field. Any producing mechanism designed to pump a liquid must take into account the effect of this gas and provide means for removing it other than through the pump. The effect of gas locking is commonly understood but is frequently overlooked when applying a device to a well where there is considerable free gas or gas in solution in the oil.

A number of wells in the field have possibilities for large production after the gas lift stage is passed judging from initial and recent capacities. Although production methods giving large capacity may not be necessary to secure allowable productions they may be important for establishing potentials.

### Present Methods

The natural flowing lift of many wells is being extended by the application of simple methods. Installation of tubing with several modifications is the principle one used. Tubing run is usually 2½-inch external upset, but 2, 3 and 4-inch sizes are frequently used.

Wells tubed to reduce the gas-oil ratio have given satisfactory results in some cases and natural flow is prolonged by a conservation of gas. Installations were common where the ratio increased when the flow was through tubing and these installations consequently did not serve the purpose intended.

Wells tubed to hold out water (mostly in the Simpson zone) have responded in a number of cases and natural flow is prolonged by retarding the entrance of water which would have drowned the well.

Small wells that would not flow through casing are flowed through tubing with success. Packers on the bottom of the tubing have been found to steady the flow and to make starting easier after the well has been shut in.

Several devices have been tried or are now being used in connection with tubing flow to better utilize the energy in the available gas. The general principle is an injection of gas through the tubing wall into the flowing column in the tubing and controlling the amount of this gas by fixed size restrictions or by mechanical methods. The oil or partial mixture of oil and gas enters the tubing from bottom.

### Stopcocking

Stopcocking of wells about to die while flowing through casing is successful in extending natural life. Head flows are obtained at intervals varying from a few hours to several days.

Most remaining wells in the lime area are produced by stopcocking heads of oil that accumulate over a period of several days or weeks by displacing the salt water that normally stands in the hole of these depleted lime wells. A few of the lime wells are now on gas lift, but after this method becomes unprofitable, it probably will be possible to secure a small additional oil recovery by stopcocking. The discussion of other production methods does not apply to the lime area wells as the economic producing limit is reached in this way.

### Gas Lift

Gas lift is a production method for most wells after natural flow ceases. This will continue as the popular procedure but a few wells have been placed directly on beam pumps. Gas lift, as applied to Oklahoma City wells, does not vary greatly in principle from practices followed in the Seminole Field.

Wells are tubed with 2½-inch external upset tubing in the 7-inch O.D. casing which is most general in the field. Some installations of 6⅝-inch O.D. casing are tubed with 2-inch external upset tubing. A few inserted 2-inch tubing strings have been run to provide large annular flow areas and to prevent excessive turbulence where oil containing large amounts of sand was lifted. Four or five-inch tubing has been run where flow was to be through this pipe.

Gas is usually introduced through the tubing with the flow returning in the annular space between tubing and casing. Some wells are flowed through tubing with the gas being introduced into the casing, but difficulty in proper adjustment of input gas is a disadvantage to this method. Satisfactory results were obtained where water encroachment was feared and wells were gas lifted through tubing to hold back pressure on the sand.

Tests run comparing the efficiency of flow through 4-inch tubing with flowing through annular space between 2½-inch upset tubing and 7-inch casing showed the flow within 4-inch tubing to be 10 to 15 per cent more efficient. Sand cutting and paraffin deposits could also be better handled in the large tubing installations. However, consideration must be given to a purchase of a size tubing suitable for later pumping use and to rate of production which is found to be increased on most wells by producing in the larger cross sectional flowing area of the annular space.

### Flowing Pressures

Sand pressures when lift is first required vary widely. Early gas lift wells had in excess of 1,400 pounds in the sand, while at present there are wells in the field still flowing naturally not requiring lift with sand pressure less than 400 pounds. Sand pressures have recently been determined to be about 300 pounds at the end of the normal lift stage when plain gas lift is not practical for recovering oil from 6,300 feet. Pressures are measured by bottom hole instruments and are found to check closely with the kick-off pressure where starting valves are not used.

Input gas pressures while operating on lift now vary from 100 to 700 pounds with the average being approximately 450 pounds. Pressures for kickoff from bottom rarely exceed 700 pounds at present.

Kickoff couplings, or starting devices, are used extensively in the Oklahoma City Field. These devices are valve mechanisms installed in the tubing that when starting a dead well, provide means of introducing gas into the upper part of the liquid column in the hole and act so that liquid is flowed off by stages. Pressure required is much less than would be necessary to lift the entire column at once. The valves are usually designed so that each closes when the liquid above it is removed and by the action of successive valves the well is kicked off to the bottom of the tubing.

### Compressor Plants

Compressor plants are in general of a permanent nature, although several semiportable installations have been made. Three stages of compression are usually used with some plants being complete in themselves while others have two stage equipment centrally located and third stage equipment adjacent to the wells. Third stage units are frequently located so that the engine and foundation are in place at the well to be made ready for pumping by a simple conversion at the end of the lift period. Gas is used for lift purposes exclusively.

### Gas Systems

Gas is delivered from plants to wells either by gas lift systems or by separate lines. Due to proration, it is possible to flow several wells individually from one lift line. As the necessary time for producing the wells lengthens there is a lapping over and the wells are then flowed at the same time by means of volume controls or chokes at individual wells or by intermittent flow from the system. Separate lines are used where wells are not more than three or four locations from the plant.

Freezing of normal gas line causes troubles. Injection of alcohol or concentrated salt water has been used to prevent freezing, but steam jacket heaters on the gas lines are most effective. Some heaters are gas fired with water jackets between the flame and high pressure line, but these do not usually transfer sufficient heat. The quantity of gas handled will carry considerable heat and gas passed through a properly designed steam jacket heater will be warm several thousand feet from the heater. Direct flame heaters can be used with greater safety as pressures carried on gas lines reduce and these installations will be even more effective.

Steam jackets on gas lift lines near wells are found to be of great benefit in combatting paraffin deposition during gas lift. Paraffin formed in the hole melts at approximately 140° F. and the heated gas melts the remaining portion

One of the Larger Gasoline Plants in Oklahoma City Field

*Authors' title: "Possible Future Production Methods, Oklahoma City Field."
Before annual meeting, Mid-Continent section, A.P.I., Petroleum Division, Oklahoma City, Okla., February 15.

which when liquefied flows with the oil and further deposition is prevented. Dissolving paraffin with heat formed by the uniting of two chemicals or by chemical solvents has not proved entirely successful. Mechanical devices similar to those used in other fields have been used to remove paraffin in Oklahoma City wells.

### Chuckler

A device called a "chuckler" has been tried with reported success for removing paraffin from tubing in flowing wells. It consists of a short piece of pipe machined to a moderately close fit with the inside of the regular tubing string. The weight of the chuckler tube is adjusted by length or wall thickness so that the natural heads of the well cause the tube to rise and fall without the use of valves. Walls of the tubing are regularly scraped in this manner. A stop is provided to keep the tube from dropping through the bottom of the tubing string.

### Input Gas

Input gas necessary for lifting fluid now averages about 2,500 feet per barrel. Large wells with some formation gas and comparatively high sand pressure require less than 500 feet per barrel. As the liquid volumes, formation gas and sand pressures decline, the requirement of input gas per barrel lifted increases rapidly. Economy in input gas is obtained by intermittent flowing when more than 4,000 feet per barrel is required for continuous lifting.

Intermittent gas lift for small wells requires from 2,000 to 3,000 feet of gas per barrel lifted. Intermitting of large wells from a system requires slightly less than straight lift. Intermitting is performed manually where long intervals are used, and mechanically for shorter intervals. In addition to the intermitters of a few years ago, a gas operated device has been developed and is in use in the Oklahoma City Field. It has the advantages of apparent dependability and a most flexible and easily adjusted timing mechanism.

Intermitting with various type of bottom chambers has been tried with considerable success reported. The principle used is to provide a compartment at the bottom of the hole for the accumulation of oil which will be forced into the hole by the pressure in the sand. These accumulations are then flowed to the surface by frequent injections of gas regulated at the well head. Two tubing strings could be used. Injected gas is prevented from exerting pressure on the sand by a packer on the tubing. A bottom valve closes when the chamber is being unloaded. From 1,500 to 2,000 feet input gas per barrel is required.

### Plunger Lift

Lifting by means of a gas actuated plunger that travels up and down a tubing string is in use several places. Equipment consists of a string of special smooth bore tubing in which an all metal plunger travels the entire length of the tubing on each stroke. Tubing is supported from the surface. It is equipped with a footpiece to actuate the plunger valve. The plunger is loose fitting and drops by its own weight. A valve in the plunger closes when striking bottom where the plunger is loaded by the oil then in the tubing. After reaching top where this slug of oil is discharged ahead of the plunger, the valve opens allowing the plunger to drop to make another trip. One installation in the field operates on formation gas, while others require pressure gas introduced into the casing.

The capacity of this device is limited mainly by the size of tubing, depth of well and effective submergence. A test through 2½-inch tubing on a large volume well with about 600 pounds sand pressure gave a recovery of 15 bbls. per hour when lift was confined to the load on the plunger. Casing pressure was 310 pounds. Input gas was approximately 1,500 feet per barrel, and formation gas 175 feet per barrel. The plunger made a complete trip to 5,700 feet in 15 minutes.

Special features adapted to the field have improved operations since first installations. A paraffin scraping plunger keeps the tubing clean at all times. A special discharge chamber at the surface has been devised so that gas following the plunger is not released after unloading oil until the plunger has dropped 1,000 feet or more down the hole and in this manner gas flow from the tubing does not retard the drop of the plunger. A tubing string smoothed at the pipe mill is to be tried in place of the specially bored pipe.

### Swabbing

Swabbing for production is applied to one well in the Oklahoma City Field, although this method has been used to start the flow on several recently completed wells and is in use during repair. The well produced by swabbing is powered with a 60-horsepower twin cylinder gas engine driving an 18-foot bandwheel unit. Three bull ropes and seven-eighths-inch swabbing line are part of the equipment. Production of over 300 bbls. liquid, 60 per cent of which is water, is obtained by 12 trips to bottom daily. A trip can be made about once an hour. This method is not expected to be generally used.

### Beam Pumping

Wells have been pumped by beam since early in the life of the field although sand pressures have only recently dropped in some areas so that pumping becomes necessary. Early installations were on small wells where operating charges could be reduced by beam pumping. In these wells liquid level in the hole was high and equipment as well as performance furnish a poor criterion for future pumping installations.

Recent installations have been made or are now in progress for testing various types of equipment. Results from runs after a few months will give valuable information.

Pumping by rods has a few major considerations. Equipment must be run inside casing varying from 4¾-inch O.D. to 9⅝-inch O.D. and to depths from 6,300 to 6,500 feet. Daily potential production will be from 10 to more than 1,000 gross barrels. Gas will range from 100 to 2,500 or more feet per barrel. Varying amounts of free and floating sand will be present. Other problems in addition to these have been anticipated for a discussion of beam pumping.

Disregarding probable gas and sand troubles, an important problem will be to produce large wells to capacity when gauged for potentials. Under present or comparable proration rates, it will not be a major difficulty to obtain the wells' allowed production. However, it is evident that if a well had a potential capacity of 1,000 bbls. or more per day and pumping limits it to 300 to 350 bbls. per day, then that particular well would be penalized considerable in comparison to other wells produced to full capacity by other methods.

It is possible that certain wells may be tubed to their approximate total depths and pumped at the rates of 500 to 1,000 bbls. of gross fluid per day where the static submergence is 2,000 feet or more. As these fluid levels recede and the effective lift approximates the total depth, then 300 to 400 bbls. per day will be good production to obtain by normal beam pumping. One redeeming feature of the inability to produce certain wells to their capacity, will be less gas locking and less sand troubles. These two conditions are minimized in wells which are not produced to capacity.

Considerable thought and study must necessarily be given to the selection and application of pumping equipment if lifting cost is to be maintained at a figure to secure greatest net returns. Possibly two of the most important selections in the pumping of wells below 6,000 feet are pump bore and proper counterbalance.

### Engines

For prime mover there will undoubtedly be a number of 40-horsepower two-cycle single cylinder gas engines reclaimed from old property in the Mid-Continent area and installed at Oklahoma City as well as new engines of this type. A number of new twin cylinder engines are now installed. It is quite likely that the heavy duty, industrial type, multiple cylinder gas engine will come in for some attention in this field. A number of these latter engines have been in service in the deep fields of California for the last two years and have apparently given service that merits further consideration. These multiple cylinder engines have a nominal rating of 40 horsepower from 900 to 1,200 r.p.m. The multiple cylinder gas engines seem to have preference in California deep fields because of smoother action. It is believed that a 40-horsepower engine in good mechanical condition will furnish ample power for pumping Oklahoma City wells if proper equipment is used and correct counterbalancing is maintained.

For transmission the conventional type of reverse clutch and counter shaft will probably predominate in the field. Double reduction gears and small jackshafts driven by belt drive from the engine and a chain drive to bandwheel shaft will no doubt be used. This type of unit will considerably shorten the rig and do away with the necessity of belt halls and engine houses. The latter types also are prominent in deep fields and are used in connection with multiple cylinder engines and electric motors.

The larger portion of rig fronts will be of steel set on concrete foundations. Here again it is quite likely that a substitution will be made on many wells over the conventional type by the installation of chain driven units.

### Belting

Endless belts and vertical type idlers are more economical to operate in pumping installations, where belting is required from the prime mover to the jack shaft and from the jack shaft to the band wheel or from the reversible clutch to the band wheel. They will also result in a greater net earning over a period of time. It is also possible to shorten the centers between the prime mover and jack shaft or band wheel, and between the jack shaft and band wheel, as compared to centers required in cut length belts.

There will be wide use of V-belt drives in connection with the multiple cylinder engine and reduction gear units.

### Pumps

The pump is probably the most important piece of equipment to be selected for successful and economical pumping operations. The bore of the pump is of prime importance in the lifting of oil. It has been learned in Seminole and camparable fields that small bore pumps in the same well under identical conditions of stroke and motion may produce a larger amount of fluid with considerably less mechanical troubles than larger bored pumps. This is accounted for by less load on the sucker rod which results in less rod and tubing stretch, and consequently a longer plunger travel. Possibly the greatest reason for reduced rod failure in Seminole operations was the decrease in the stress range and maximum stress ratio by the decreasing of the bore of the pump. This will be even more true when pumping from 6,300 feet.

Cupless insert pumps ranging in size from 1 inch to 1¾ inches inside diameter will probably predominate. These types will be of cold drawn tubes, hardened cast iron liners or cast steel liners. It is logical to assume that cups on an insert pump at a depth of 6,500 feet exert a braking pressure against the wall of the barrel which is not desirable.

Cup pumps are in the minority for deeper than 6,000 feet. In the shallower wells in northern California, as well as numerous places in Mid-Continent, it is quite common to use hardened cast steel liners with chromium plated plungers or plungers with special hard rings for handling sand. Since it is unlikely that pumps larger than 1¾-inch bore will be used and these may be of insert type, it is doubtful if any tubing pumps will be used. From 15 to 20 hours additional time is required to recondition a tubing pump as compared to an insert pump.

### Sucker Rods

While it is likely that small bore pumps with three-quarters inch rods would give as good service in the Oklahoma City Field as they do in the Seminole Field, it is believed that seven-eights inch rods should be used on top. A simple mathematical method of determining the per cent of seven-eighths inch rods to use on any combination string for the Oklahoma City area that depends on the pump bore has been used by a rod manufacturer to supply the following recommendation:

| Effective plunge diameter | Per cent of ⅞-inch rods |
|---|---|
| 1 1/16 inch | 25 |
| 1¼ inch | 27 |
| 1½ inch | 30 |
| 1¾ inch | 34 |
| 2 inch | 38 |

The stress range to maximum stress ratio probably has more bearing upon the economical life of sucker rods than does the maximum stress. It is believed exemplified in all deep pumping areas, and is reasonable to expect that rod service will be better in wells equipped with a maximum of 1½-inch bore pumps than wells equipped with 2-inch or larger. A practical example of this follows:

| | | |
|---|---|---|
| Pump bore | 1 1/16" | 2¼" |
| Pump depth | 6,780 | 3,315 |
| Gravity of oil | 42 | 27 |
| Per cent of water | 27 | 58 |
| Surface stroke | 54" | 34" |
| Fluid load | 1,140 lb. | 4,870 lb. |
| Rod load | 10,800 lb. | 5,280 lb. |
| Maximum stress | 11,940 lb. | 11,150 lb. |

Although total loads in both cases are very nearly equal, the active or live load represented by the fluid in the first example is 9.55 per cent of the total, in the second case it represents 43.56 per cent. It is obvious, when considering fatigue characteristics of steel that the range of load in the deep well is within safe limits, yet in the shallower well the fatigue condition is very dangerous, where one would ordinarily assume the load to be unimportant. This shallow well

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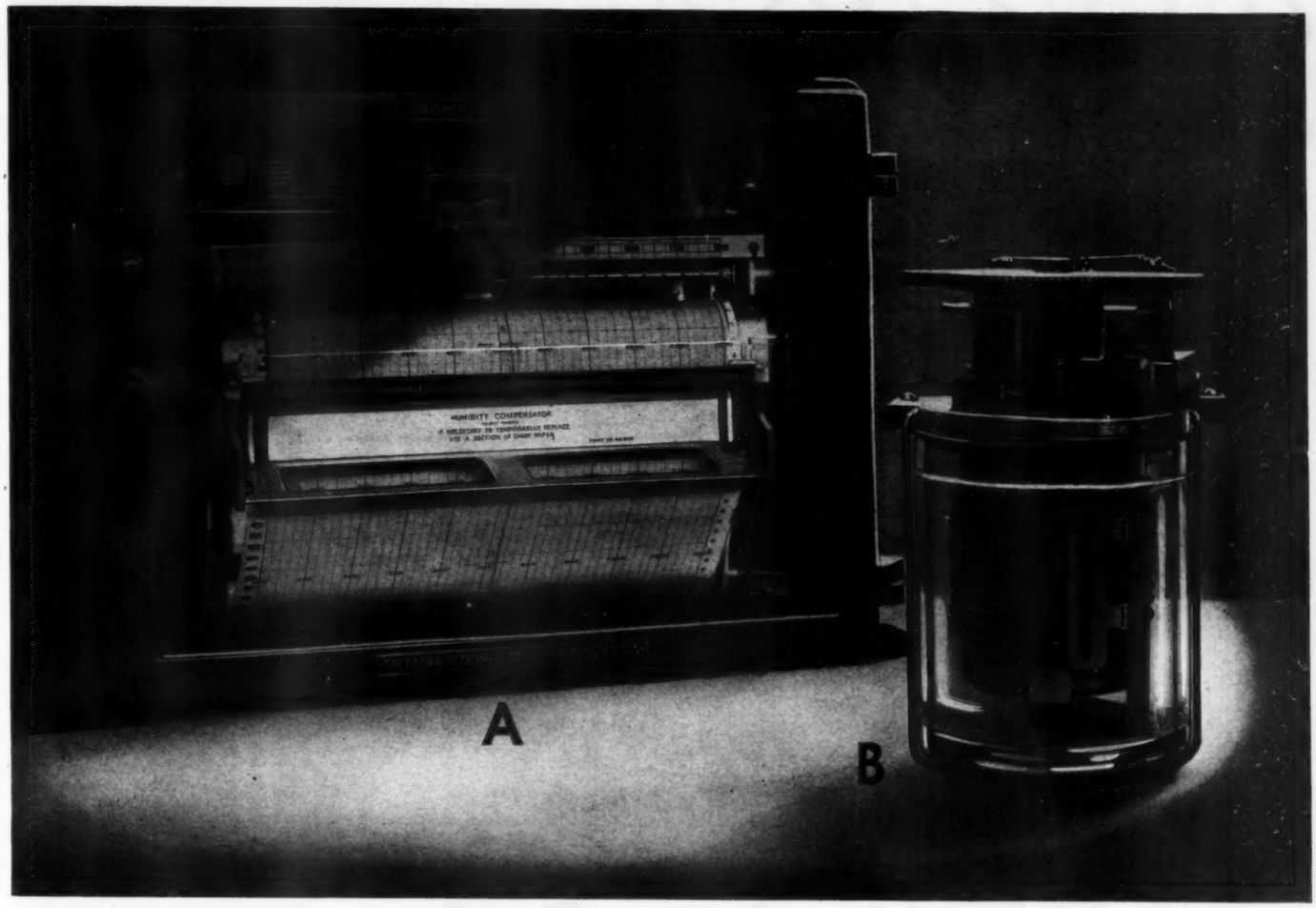


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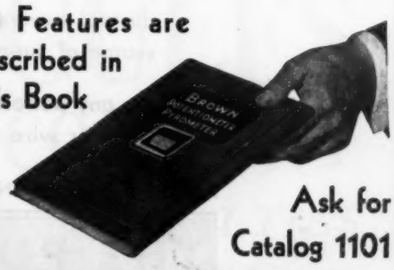


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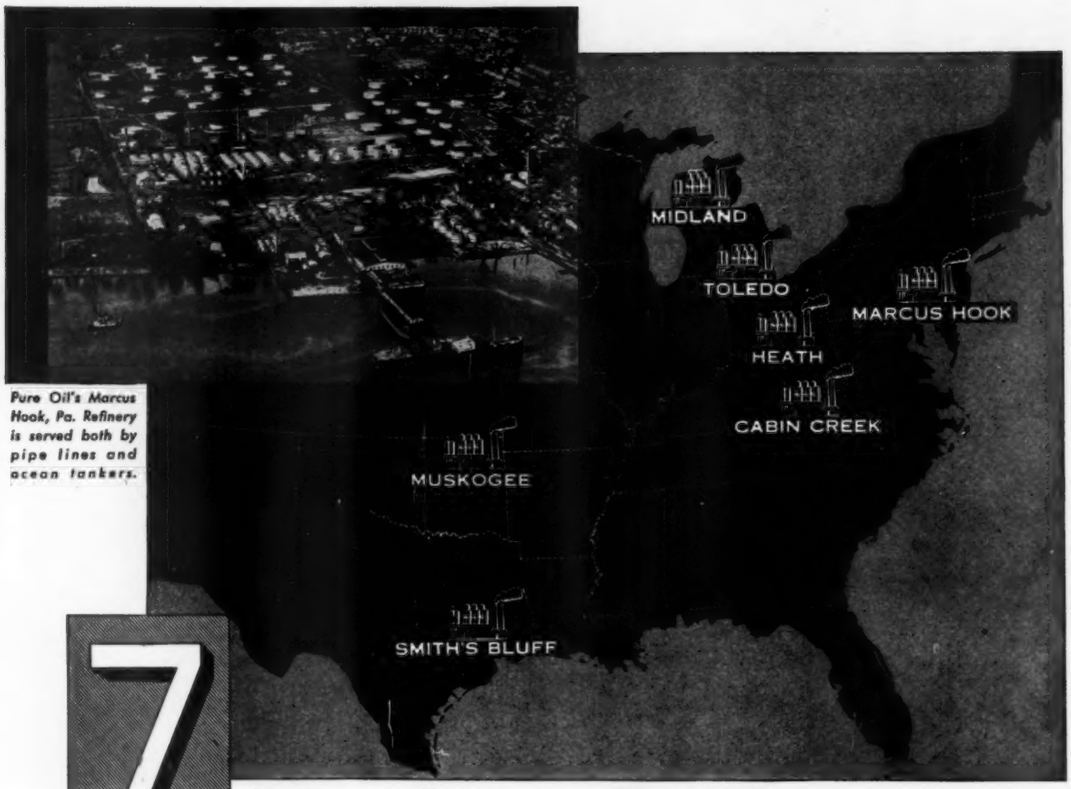


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is typical of wells in which rod troubles are a serious problem.

Tubing used will probably be the 2½-inch upset now in the wells for flowing or gas lift. This is a practical size to allow sufficient room for fishing tools without too much space for a whip of the rods. Tubing stops or anchors to prevent tubing stretch will prove valuable.

Beam pumping Oklahoma City wells will probably give considerable worry until field forces become accustomed to the action of the wells. However, a great reduction in troubles will be secured by the application of proper pumping equipment. The ease with which a 6,300-foot well may be pumped on the beam may be surprising if full advantage is taken of recent developments of equipment and design for deep well pumping.

### Devices Tested

A submerged electric motor-driven centrifugal pump has been tested on several wells in the Oklahoma City Field. The device consists of a motor directly connected to a centrifugal pump near the bottom of the hole with power transmitted through an insulated and protected electric cable that extends from the pump to the surface. Fluid is raised through the 2-inch external upset tubing on which the pump is run.

The motor is for alternating current and is operated from a 440 volt, 60-cycle three-phase line. Current is stepped up by transformers to 850 volts on the surface which reduces by line loss to about 620 volts at the motor. The motor is composed of a multiple number of rotor sections on the same shaft, run in a stator that is one piece. Each rotor section is 15 inches long, is complete with bearings and develops 7½ horsepower. Units tested have been composed of 10 rotor sections to rate 75 horsepower, but 97 horsepower motors are under construction as most suitable. The motor diameter is 5 inches and speed 3,600 r.p.m.

The pump is a series of impellers similar to a centrifugal type pump. The number of impellers is determined by the head of fluid lift which in turn depends on depth to setting, effective submergence and type of fluid lifted. The pumps tested have had 125 stages but this number will be increased to 139.

The cable is composed of three wires, heavily insulated and all enclosed by a flexible metal covering. It is strapped to the tubing at intervals of 15 to 30 feet, both tubing and cable being installed at the same time.

Recent difficulties on test have been thought to be from gas locking, but a gas expeller has been designed with the idea of keeping gas out of the pump. The electric cable has failed occasionally due to pressure forcing liquid through defects in the insulation and thereby shorting and burning out the wire. The motor was overloaded on early tests, and gave some trouble that might be expected of any overloaded equipment.

This pump assembly is ideally suited for handling large volumes of fluid. A test on a 75 horsepower, 125-stage pump installed at 6,292 feet in a large well with 475-pound sand pressure averaged 750 bbls. oil daily for several days. Power required was 2.4 kilowatt hours per barrel lifted.

Power costs of this test were 4 cents per barrel lifted if the current is calculated on the basis of a single installation where the electric company furnishes line and transformers and charges an average of 1.7 cents per kilowatt hour. The power cost reduces to 8½ mills per kilowatt hour where the operator furnishes part of electrical equipment and the power demand is higher because of several installations. On this basis the cost is 2 cents per barrel.

Additional features are claimed for the pump, some of which were shown on test. Gravity of oil is increased due to gas being held in solution by the pressure necessarily maintained on the well head to keep the pump evenly loaded. Emulsion and cutting when water is present is said to be reduced, or eliminated. Corrosion has not affected the pump although a slight abrasion was noted on the impellers after a run.

### Long Stroke Units

Several long stroke pumping units using rods have been tried. Stroke is lengthened mechanically by chain and gear driven assemblies or by leverage arrangements. Hydraulic or pneumatic cylinders somewhat comparable to the old-fashioned steam heads are adaptable.

### Pneumatic Cylinders

Pneumatic pumping cylinders appear to have the greatest possibilities. These are obtainable in two types, which differ mainly in the method of counterbalancing rod load. One design is hung from the derrick and uses a back pressure on the cylinder on the downstroke. The other is supported from the foundation and has a counterbalancing tank containing pressure which acts on an annular area of piston to balance the rod load. In the first case it is essential to recycle gas because of the high discharge pressure. The latter operates on low pressure and is well adapted for conditions where low pressure gas can be obtained from separator discharge where it would ordinarily be wasted. Gas can also be recycled through a compressor if desired.

There are special features to pumping with pneumatic cylinders in addition to the possible long stroke. Tests have shown considerable less rod load when compared to beam pumping on account of the smoothness with which the cylinders handle the load. Rod troubles are greatly reduced and operations are extremely flexible. The ease with which valuable information may be obtained concerning the action of the well appeals to the engineer.

A unit which is counterbalanced by the discharging pressure is being installed at present. The piston in the cylinder is 10 inches in diameter and is capable of a 10-foot stroke. Operating pressures will approximate 350 pounds input and 150 pounds discharge. Gas required will be less than 3,000 feet per barrel lifted, but volume necessary may be reduced by preheating. This volume of gas is not excessive when consideration is given to the return pressure which is available for compressor intake. Calculated requirement is approximately one horsepower for 10 to 15 bbls. lifted.

### Other Long Stroke Units

Tests on other long stroke methods will soon be made. A chain and gear-driven design has had successful runs in shallower production. A leverage type unit with a background of experience in other fields will be adapted to Oklahoma City conditions. These units are independent of regular standardization equipment.

Long stroke pumping has an important place in future production methods. Output per inch of polished rod travel is greater than that of beam pumping because the proportion of stroke lost by stretch is reduced. Lowered peak loads and fewer reversals of stress reduce rod breakage. Equipment offered is readily portable and is obtainable at a small part of the investment necessary for beam pumping.

Methods to provide artificial submergence for gas lift operations have been tried but have never proved practical. These installations require a somewhat complicated mechanism to be placed at or near the bottom of the hole, and difficulties arise from inability to adjust or readily repair same.

One device tested consisted of a regular plunger pump actuated by a direct connected piston. The piston contains the valve mechanisms and operates similar to a double acting steam engine. Gas was pumped into the casing to run the engine which discharged into the tubing and provided gas for lifting the oil to the surface that was pumped into the tubing. Pressure was kept from the sand by a packer on the tubing below the engine. Well conditions interfered with the test. Paraffin and sand gave so


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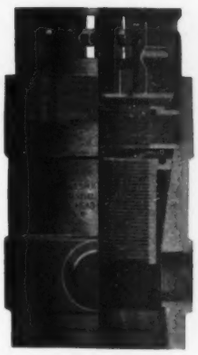

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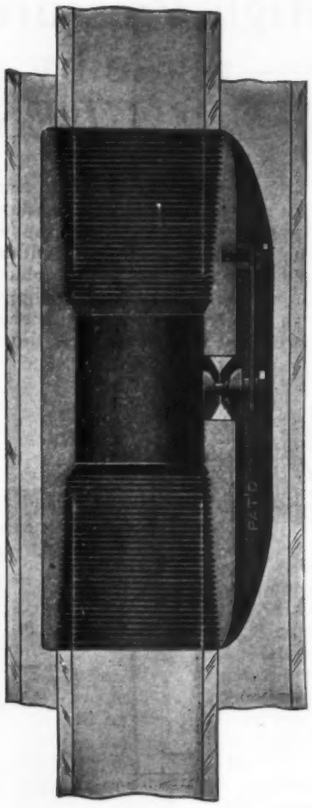

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much trouble results were not conclusive. Another installation is being planned.

### Gas Displacing Pump

A gas displacement pump is being tested but positive results have not been secured so far. It can be briefly described as a chamber lift in which the intermitting valves are a part of the assembly in the bottom of the hole. Valves are actuated by floats which allow the filling and emptying the chamber at a rapid rate. Two strings of pipe are used, one to carry the fluid to the surface while the annular space carries gas down to the chamber. Pressure is kept from the sand in this manner.

A method that is appealing from the standpoint of small investment, low replacement cost and power economy is the use of liquid displacement motors. These devices are essentially a piston run on two strings of tubing and so designed that by pumping a liquid from the surface the piston in the bottom of the hole is actuated. This reciprocating motion of the piston is transferred to a direct connected pump which brings fluid into the tubing from the hole. Methods of input and return of liquid vary widely. The system is referred to as "pump in 2 bbls., get out 3."

Numerous liquid displacement motors have been developed but none has reached the stage of popular acceptance. A recent installation in California is showing remarkable results especially in power efficiency. A test on a new design will soon be run in the Oklahoma City Field.

### Stage Lifting

Stage lifting by gas lift has some merits. Numerous types and variations are possible. The principle would be to divide the necessary 6,300 feet of lift into two or more steps and in this way reduce the working pressure and submergence required. This in turn would reduce the back pressure on the sand and allow more oil to enter the hole than would be possible on straight gas lift. An installation of this character will soon be made.

Gas lifting with a submergence provided by means of a centrifugal pump driven from a gas turbine could be used. The discharge from the turbine would provide gas for straight lift of fluid as it was brought in from the well by the pump. Tests on shallower wells have shown encouraging results.

Methods for assisting pumping when using rods and plunger pump have been developed. Pumping in stages has been used in some fields but the additional equipment with the consequent additional mechanical difficulties is a drawback.

Combination gas lifting and pumping has been frequently tried. Volumes of liquid handled may be increased by reducing the pumping load due to the aerated column and permitting use of larger bore pump plungers. Several mechanical difficulties and high operating costs are disadvantages.

An electric motor-driven reciprocating pump to operate in a similar manner to the electric centrifugal pump has possibilities.

### Summary

The exact nature and proportion of various types of equipment that will ultimately be used is uncertain. The concensus of those in best position to judge is that 50 per cent of the wells will be beam pumpers after wells have been carried to the economic limit of straight gas lift. Long stroke pumping units will be found on 25 per cent of the wells at that time. Capacity methods such as electric motor-driven centrifugal pumps and various gas lift modifications will handle 15 per cent. The remaining 10 per cent will be produced by small volume gas lift methods and miscellaneous devices.

Most of the production methods applicable to the Oklahoma City Field have been described. Some methods have not been fully covered in their minor features. Others closely related to those described, or as a combination of methods, have not been covered. It is believed, however, that the discussion lists all possibilities from which the future production methods may be selected.

Selection of suitable equipment depends on numerous factors several of which justify an equal amount of consideration.

Production capacity will probably be most important in the Oklahoma City Field. Wells will pass the normal gas lift stage with larger potential production rates than have heretofore been handled.

Cash expenditure is also important. The investment and expense of installation varies widely with the choice of methods. It must not be overlooked that some methods do not supply equipment necessary to make the complete installation or equipment that may be later required to condition the well. The operating expense for labor, power, etc., will extend over a long period and a small monthly difference will amount to a sizable item through the life of the well. Maintenance material expense is somewhat similar.

Dependability of equipment and ease and speed of repair must be taken into account especially in the strongly competitive areas. A slightly higher operating expense may be more than repaid by a continuous operation that does not lose production because of breakdowns. Simplest construction and operation is usually most satisfactory.

The problem is, of couse, different for each operator. Those with several wells may best utilize equipment that can be centrally powered. Low investment equipment, exclusively for producing, may be used at the wells and reconditioning or repair machinery moved about as needed. Smaller operators will necessarily look to equipping each well as a unit.

On certain types of wells it may be profitable to install equipment for large volume production at the start because of competitive drainage. Later, as the wells decline, this equipment may be replaced by a different type that would reduce operating costs sufficient to justify the change. In this case as in all others, it must not be overlooked that ultimate profit is the guide.

Choosing of production methods may best be done on a well by well basis. Knowledge of the area in which the well is located, and the characteristics of the well itself will prove important in the proper selection of the production method.


### Acknowledgements

The writers are indebted to a large number of operators and their employes as well as numerous manufacturers who supplied information and offered opinions that were embodied in the paper. Grateful acknowledgement is especially due to C. M. Rader and R. A. Feemster, Phillips Petroleum Co.; E. J. McKee, Wirt Franklin Petroleum Corp.; E. A. Jenkins, Skelly Oil Co.; J. K. Ellis and J. M. Hewgley, Slick-Urshel; Claude V. Barrows, oil editor, Daily Oklahoman; C. E. Wright, E. J. Klopfenstein, Indian Territory Illuminating Oil Co.


Attention is called to several publications of recent years that were of value to the authors in preparing this paper and will prove valuable to those interested in more detail on certain phases.


Gas Lift Practices at Seminole, compiled by J. R. McWilliams, Mid-Continent district, American Petroleum Institute, May 28 and 29, 1929.

Some Recent Developments in Deep Well Pumping, R. R. Hawkins, Mid-Continent district, American Petroleum Institute, May 23 and 24, 1930.

High Volumetric Efficiency in Oil Well Pumping and Its Practical Results, Hallan N. Marsh, mid-year meeting, Division of Production, American Petroleum Institute, June 1 to 4, 1930.


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OKLAHOMA CITY, Okla., Feb. 10.—The case in Federal Court involving the state tax on the 3 per cent deduction for b.s. and water (Tax Commission vs. Stanolind Oil & Gas Co.) and originally set for hearing on February 12, has been continued by Judge Vaught until Monday, April 2.

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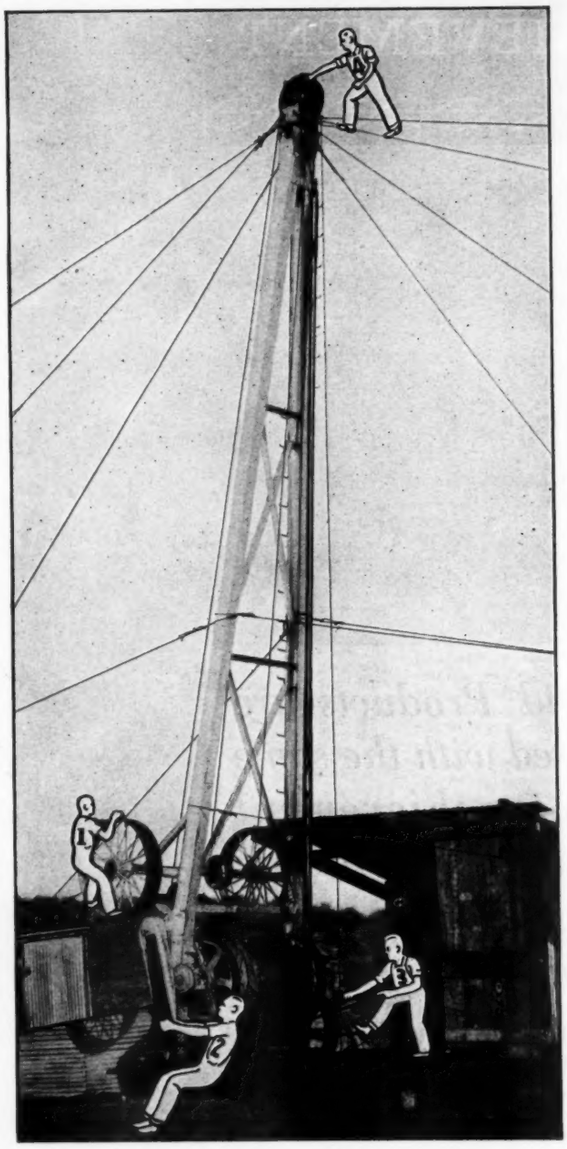

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# Shooting, Cementing, Bailing and Cleanout Work Used Extensively in Oklahoma City Field

By J. M. HEWGLEY[1] and J. P. STEPHENS[2]

This paper pertains to reconditioning of wells in the Oklahoma City Field that have been on production and have reached the stage at which reconditioning is necessary. This paper will deal primarily with the Wilcox zone. The initial bottom hole pressure of 2,600 pounds has reached an average pressure of approximately 650 pounds. This decline over a period of three years explains the change in reconditioning as to equipment and methods.

### Bottom Hole Measurement

During the past few years a number of Oklahoma City operators have installed winch and power driven measuring devices on automotive equipment. In general these units are used in determining bottom hole pressure, bottom hole samples of liquids, for running vertical deflection tests, for measuring depths of wells and for determining the amount of cavings in a well. From these tests the condition of the hole is determined.

### Surface Equipment

Since the pressure has declined until it is hard to maintain circulation, it has been necessary to stack the rotary tools in favor of the old conventional cable tools with the addition of some new and improved tools and methods. Some operators have found it more convenient and economical to install either wood or steel fronts of conventional type. This equipment can be used as pumping equipment at a later date.

### Portable Equipment

The portable equipment has numerous advantages over the stationary equipment since there is a need for economy and speed in the reconditioning of wells. There has been recent improvements of equipment for cleaning out, and also for running tubing. Some of the units are mounted on tractors or trucks while others are built on suitable portable foundations. The type of equipment used is in accordance with the job to be done; the lighter mounted tractor or truck is being used for tubing jobs. The power winch or hoist is being used where the use of a beam is not anticipated in a clean-out job and the portable front is being used on the more difficult reconditioning jobs.

### Cleaning out Preparations

In preparing for reconditioning, the well is disconnected from the separator and the necessary high pressure connections installed for connecting the pump, which is to be used for killing the well. The oil is then pumped into the well until the fluid that is going back into the formation relieves the pressure on the well head. Clean oil with no water must be used in killing the Wilcox sand wells because the water tends to pack the sand and cause tools to stick in the sand. The blowout preventer and lubricator is then installed. Suitable connections are made so that in case the well starts flowing during the clean-out operation, the oil may be pumped into the well until it is dead. A sufficient weight of oil is kept on the formation at all times so that the well is kept dead, as a prevention of fire hazard in the thickly populated sections. As a safety precaution a lubricator of sufficient length is used so that the master gate may be closed under the tools, with the lubricator arrangement it is possible to work on small wells without killing the well but on account of the large volume of gas in the Wilcox sand, it is necessary to keep the majority of the wells dead.

### Subsurface Equipment

The various types of sand pumps now being used have cut the time and expense to a minimum. When the bottom hole pressure was high, considerable trouble was experienced with the bailer and sand pumps hanging in the formation. Gradually this difficulty has ceased because of the loss of formation pressure and improvements of the pumps. Since the pressure has declined, the old sand pumps are being used by some operators with a degree of success in connection with tools.

### Swabbing

The swab is also now being used to loosen the packed condition of the sand so that the sand pump can obtain a good load. It is also very effective on the loose and floating sand and is generally used to revive a well after a clean-out job, but this, of course, necessitates the well being on production.

### Shooting Practice

Shooting is a very important practice, and necessary in the Wilcox sand, especially the tight sand formation. Data has been obtained from the results of shooting of wells in the field in the tight Wilcox sand and the results have proved satisfactory for obtaining more oil, but the gas is generally about the same volume after a shot which gives a better oil-gas ratio. Various sizes and kinds of shots are being used depending upon the formation and thickness and the structure. Some operators are now using a patented shot container that is pulverized or burned away with the shot, thus overcoming the difficulty of drilling up or cleaning out the tin as in the old type container. Because of the low fluid level, the sand tamp shot is giving satisfactory results. It also decreases the hazard of damaging the casing. The sand is usually tamped about 100 feet above the top of the shot. It causes the shot to penetrate the sand further and at the same time protect the casing.

### Cementing or Plugging Back

There are three practices that have proven satisfactory in the Oklahoma City Field. First, establishing circulation through tubing or rotary pipe using more cement than necessary and the surplus pumped out, but it has now become practically impossible to establish circulation in the Wilcox area since the sand is porous and the formation pressure is low. This practice in most cases must be abandoned.

### Cementing Through Tubing Method

Second, when the cement is run through tubing the liquid level on the outside is determined and the amount of water used to spot the cement in the bottom of the hole is figured. This amount of water is the amount necessary to overcome the weight of the fluid on the outside plus the weight of the cement. On account of porous formation and low bottom hole pressure, it is sometimes necessary to use 50 to 200 per cent more cement than would be necessary to fill the hole to the desired level, but caution has to be taken to keep from getting in too much cement for there is no way to circulate it out.

### Dump Bailer Method

Third, when using the dump bailer method, it is necessary to cement in short sections of approximately 10 to 20 feet so that each section may be allowed to set. Between each section of cement some lead wool and oakum is tamped in. This operation is continued until the desired depth has been reached.

### Liners

In at least three cases in which the oil string was set too high, a solid liner has been suspended from approximately 30 feet up in the oil string to the desired depth. This was run on rotary pipe with a release spear on top of the liner. The liner was cemented to the casing and to the formation. To maintain circulation for the cementing job, circulation was obtained by sealing off the sand with a mixture of colloidal mud, cotton seed hulls and cement.

### Simpson Zone

The reconditioning operation in the Simpson zone is the same as in the Wilcox zone; however, perforated liners have been run in the Simpson area particularly to shut off shale cavings. This has been done by lowering the liner on cable tools and drilling through the liner so that the cavings are cased off as the hole is cleaned out and the liner settles down to the desired depth, or the hole is first cleaned out and the liner suspended in the bottom of the casing. In the Simpson area the plug back operation is to shut off water, or develop a higher gas or oil-bearing formation. If the oil or gas formation is cased off behind the water string, the smaller or oil string is pulled and the well finished through the larger pipe. In such cases, the pipe and cement is penetrated in at least one of three ways; viz., the nitro shot, the casing ripper, or the gun shot. The gun shot is now being introduced in this field and since the method has been used in other fields, it should be of value here.

Author's title: "Reconditioning of Wells in the Oklahoma City Field."

Before annual meeting Mid-Continent section, A.P.I., Petroleum Division, Oklahoma City, Okla., February 15.

[1]Production superintendent, Slick Estate, Oklahoma City, Okla.

[2]District superintendent, Phillips Petroleum Co., Oklahoma City, Okla.

# Many Oil Companies Joining in Movement Increasing Scope of Vocational Training

By L. K. COVELLE

State Supervisor of Vocational Education, State Department of Education, Stillwater, Okla.*

The National Education Act passed by Congress in 1917 was designed to give educational training to people engaged in specific occupations, namely, agriculture, trades and industries, and home making. The primary purpose of the act was to democratize public education.

The Division of Trade and Industrial Education has three major functions, first that of part-time education for minors, while yet of school age, who are employed, and giving them specific training that will aid them in a successful entry into industry; second, day-trade where the Federal and state departments co-operate with the public school in giving the boy specific trade training, such as carpentry, auto mechanics, welding, machine shop, etc.; third, evening school training for men engaged in industry. It is this last phase of the trade and industrial work in which men in the oil industry are vitally interested.

Leading up to enaction of the Smith-Hughes Act, surveys were made on a national scale and it was found that our public schools, in their training programs, were not giving the boys sufficient training for a successful entry into industry. Statistics were compiled, and it was found that only 34 boys out of a hundred entered high school—17 graduated. Seven entered college and two graduated. It is this 66 per cent, who never enter high school and who go into their life's work without sufficient training to progress in the job they now hold, whom we are attempting to reach. Industry today is made up largely of men who dropped out of common school because of conditions over which they had no control. It was developed also that our public schools were, and are, training for the professions alone. A very small per cent of these boys and girls get specific training to enter into a vocation. With this condition existing, the Smith-Hughes law was passed giving the opportunity of further education, through adult education or what is called evening school, to the man already on the job.

There is appropriated each year by Congress a certain amount of money for the paying of salaries of teachers instructing men who are employed in industry. This money is allocated to the several states and matched dollar for dollar through state appropriation or local tuition from the men. This plan operates similar to that of the Federal good roads projects. Each state has a board that is charged with the responsibility of directing this program. A state supervisor is employed whose duty it is to promote, organize and supervise these classes. Wherever there is a community in the state where sufficient industries are located, a local man connected with the public schools is employed by the vocational department to assist the state supervisor, and he is the contact man between the public school and the industry in the development of the program. Smith-Hughes money is available wherever there is a public school. The local city school superintendent is familiar with vocational education and is at all times willing to assist in the development of a program in his community when

*Before Mid-Continent Section, annual meeting A.P.I. Production Division, Oklahoma City, February 15.

Author's title, "Vocational Training."

the demand comes from the industry for such service. He, in turn, communicates with the state department and a splendid co-operation is manifest.

Since 1917 a great many industries have taken advantage of the Smith-Hughes Act and have developed some very fine programs in their organizations. I mention the utilities companies, who have developed some fine courses in practically all of the states; the cleaning and dyeing industry, where classes were developed in many centers; the railroads having developed evening programs and co-operated in many instances with the vocational department; the textile industry; the firemen; and the oil industry, where much has been done, but not to the extent which is now under way. Oklahoma, at one time, had over 8,000 people in adult classes in one year.

### Developing Program

The first step in the development of an educational program with any industry is a foremanship training conference. These foremanship training conferences are conducted by the State Department of Trade and Industrial Education. This service is a promotional service from the standpoint of the department, but, for the industry, it has three functions: First, it improves foremanship; second, the improved foreman improves production and this is an economic factor for the company, and third, a curriculum content is pulled out for the evening classes. Whenever an industry wants a foremanship training conference, a request is made to the state supervisor of trade and industrial education. Then the industry selects 15 or 20 foremen or key men in responsible positions for a 20 to 30-hour intensive foremanship training course. Experience has proven that these conference are much more effective where they are held intra company. The conference leader merely directs the thinking of the group. These men sit around the conference table very informally where each man can see the other, with a blackboard up in front. The first step is to determine the number of years' experience represented in this group of men. This will vary all the way from 75 to 400 years. They start analyzing the foreman's job, projecting it on the board. They will determine that a foreman's job is divided into three separate and distinct functions—managerial, supervisory and instructional. Then they will classify their duties under these three functions. No two foremanship conferences are identically alike, but all will center on these three factors with which foremen have to deal—material, equipment and men, with the major emphasis on the training, handling and developing of men. There is usually considerable discussion at this point in the conference. Then the skillful conference leader introduces a group of case problems that are placed on the board for the men to use in making application of the discussion that has been carried on by the group.

Out of the foreman conference comes the desire for more knowledge of the job and a new emphasis is placed on the training of men. With very few exceptions, evening classes and a complete change of attitude among the foremen, as well as among the workmen, has been the result of our many foreman conferences in Oklahoma. The vocational department in Oklahoma is hesitant in starting an educational program of evening classes without first selling it to the foremen. If the foremen are sold on an education program, it will go over. If not, there is a question. Our department here in Oklahoma is limited, but we are spending a great deal of time in foremanship training conferences, and principally in the oil industry at this time.

### Developing Program

Evening classes, as a result of foremanship training conferences, are now in operation in several centers of the State: Oklahoma City, Tulsa, Sand Springs, Okmulgee, Muskogee, Sapulpa, Seminole, Wewoka and Ponca City.

In developing an educational program, three factors must always be considered: the personnel of the group, the teacher, and the content to be taught. Surveys and questionnaires have shown (and this is no reflection on the oil industry or any other industry) that the extent of formal education among the employes is very low. When I say low, I mean from the third to the sixth grade. This is about average. A great deal of care is exercised by the vocational department in the selection of teachers. A teacher must, first, know his subject; second, have a desire to give real service to the men, and third, have special training on how to do the teaching job. The vocational departments of the several states have as a part of their job, for which money is appropriated, the training of teachers. This is being done very intensively in Oklahoma. In the Oklahoma City Field, Seminole, Burbank, and Drumright, the teachers are to be trained before they start their classes. They are now in that process in the Oklahoma City district. Thirty-six men were handpicked by the company in co-operation with the vocational department.

*When the field was young. Wilcox well cleaning hole of mud*

In the development of courses of study, I wish to express my appreciation for the splendid co-operation of the American Petroleum Institute in the development of courses—what to teach and the development of material has retarded vocational education more than any other one factor, for the reason that no one in the vocational department can say what must be taught. It is only those men who are engaged in the oil industry who can authentically give the information as to what the men must know. In order to find this information, it is necessary that analyses be made to find out just what a man does in the many different occupations within the industry; and it is in this part of our educational program that you men, and you alone, can assist us in the offering of men who are qualified to assist us in this program.

Many books have been written and a great many papers delivered that have been fine contributions to the oil industry, yet only a small per cent of the men can read these and understand them. They are not written in the language of the greater number of the men, and it is in this field that the topical committee of the A.P.I. has started to work—collecting and assembling the rich material and passing it to the chairman of the subcommittee to take it and put it in its teaching sequence and in a language readily understood by the men on the job. They will seek the assistance of others to turn in material for that purpose. A course of study for men engaged in the production and refining of petroleum is being developed, the vocational department and the American Petroleum Institute working together.

### Public Interest

The question is sometimse raised, "Why is the public interested in the promotion of vocational education?" The answer is that the consumer pays for all inefficient work of the producer. If inefficient methods are employed in industry, the cost of production is greater and, therefore, the cost to the consumer is greater.

The American ideal of rugged individualism has been emphasized nowhere better than in the oil industry. It must be admitted, however, that the ideal of rugged individualism was responsible for the development of the greatest, most efficient, and, from the standpoint of personnel of employes, the most humane system of industry the world has yet known. By this method, you have developed a machine that will drive a bit 12,000 feet under the earth's surface. It was rugged individualism and cruel competition which made that engineering feat possible. You have developed a very superior product, a major portion of which is designed for use in internal combustion engines, but you have protected your investors and the public through the development of all sorts of by-products which minister to the needs of the public. Any American citizen with a half developed sense of appreciation will take off his hat to the leaders of the petroleum industry and to the leaders of that allied industry, the automobile industry, for the services rendered to all mankind. It is easily possible today for the average citizen to enjoy comforts and even luxuries of which the king in his palace a little while ago had no knowledge.

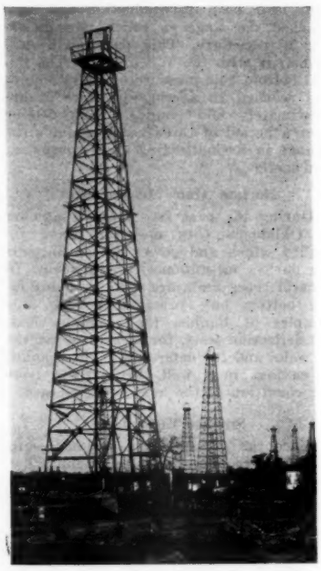
According to the estimate of some of the members of the staff of the Federal board, the training program for men in the oil industry has developed somewhat more satisfactorily in Oklahoma than in any other state. If this be true, it is due to the fact that there were in Oklahoma outstanding leaders of the petroleum industry who were willing to co-operate with any agency in the development of a program of service which would improve the personnel of their working force. It is no longer necessary to ask for co-operation. It is only necessary that we utilize the opportunities afforded for the further development and refining of the program which is only just in its beginning. Until recently, much of the public money appropriated for the promotion, organization, and supervision of vocational education has been spent in promotional activities. That day is passing. Of this fact there is no better evidence than that the American Petroleum Institute, in the arrangement of its program for the semi-annual meeting, has elected to give careful consideration to the problem of training men for the industry.

### Future Problems

Has the day of cruel competition ended? Is the dominant note of this meeting that of the formulation of plans for fair competition? Have you come to the day when you recognize the importance of the protection of the consuming public? Your efficiency in production has caused the near collapse of this gigantic industry. Incident to the near collapse of this great industry have been many tragedies, but that leadership which was able, under the system of laissez faire, rugged individualism and fierce competition will be able yet to develop a system of co-operation which will, let us hope, conserve much of, if not most of, the fine qualities of individualism which have formerly obtained in American life. In this new scheme of things, there will, of necessity, be a shifting of emphasis from the material to the human factors of production.

Your employe, you must realize, is not alone your employe—he is a member of your consuming public, and your stockholders in the future will not be able to take all the traffic will bear and let's be courageous enough to say it, he shall have some voice in what the traffic will bear. Under the former scheme of things, you have had to do things which you did not want to do, but, to maintain the morale of your company and those commanding positions within the industry, you have justified your procedure. This thing that I am talking about is somewhat idealistic, but it may be that we shall find, after all, as a fundamental policy, idealism is the best policy.

The entire program of public education is undergoing a reorganization comparable to that which is taking place in industry. Commissioner Zook, of the U. S. Office of Education, working under the direction of Mr. Ickes, of the Department of the Interior, at a recent meeting of the American Vocational Association at Detroit, made the statement that in the new plan of education, adult education will have as definite a part as that of elementary or secondary education. The program of adult education, as it is conceived by leaders in the field of vocational education, will be developed in co-operation with organizations of employers. It is contemplated that training will come to be recognized in the codes of fair competition as a responsibility, both of industry and of education. The school alone cannot do the job. They can do only a poor job of pre-employment training, but, under the program of the future, industry will be relieved of that troublesome period of adjustment of the new employe to the job. Education, in the future, will not be of the cold storage type which has obtained in the past, but will be given cafeteria style, either within the school or within the shop or industry, and the instruction will be given when the need arises and the training will be given in an actual situation rather than an artificial situation in connection with the school plant.



*Small portion of the forest of steel derricks in the Oklahoma City field*

## Tentative Arrangements For A.P.I. Dallas Meeting

W. R. Boyd, Jr., executive vice president, announces that tentative arrangements for the fifteenth annual meeting of the American Petroleum Institute on November 13, 14 and 15, at Dallas, Tex., call for sessions of the board of directors to be held in the Adolphus Hotel, general sessions at the Baker Hotel, and officers of the Institute will have headquarters in the Baker. The refining and marketing divisions will hold sessions in the Adolphus, and the producing division will meet in the Baker.

A general committee formed under the leadership of Capt. J. F. Lucey includes E. H. Blum, Atlantic Oil Producing Co.; E. R. Brown, Magnolia Petroleum Co.; W. H. Francis, alternate; F. W. Burford, East Texas Refining Co.; J. Ben Critz, Dallas Chamber of Commerce; L. B. Denning, Lone Star Gas Co.; Joe F. Ellis, Humble Oil & Refining Co.; Dudley Golding, Golding & Murchison; S. A. Guiberson, Jr., Guiberson Oil Co.; B. F. Harris, Oil Well Supply Co.; H. J. Morlang, alternate; L. R. McCollum, Emsco Derrick & Equipment Co.; E. T. Moore, Simms Oil Co.; William J. Morris, Continental Supply Co.; R. H. Morrison, California Co.; Hal Noble, Texas Co.; J. Edgar Pew, Sun Oil Co., and R. B. Whitehead, Atlantic Oil Producing Co.

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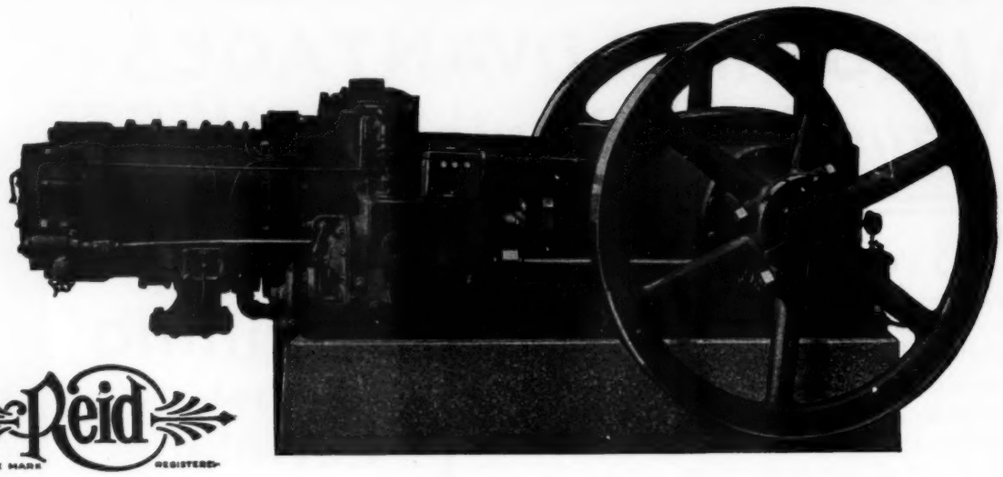

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# Analysis of Some Advantages of Consolidating Old Oil Properties for Joint Repressuring

By JAMES O. LEWIS
Consulting Engineer, Dunn & Lewis, Tulsa*

In attempting to comply with the request of your program committee for a general article on repressuring, I have found it impossible to cover the whole subject adequately within an article of reasonable length. I have therefore found it necessary to narrow the subject and I have chosen to discuss the advantages of consolidating properties for purposes of repressuring.

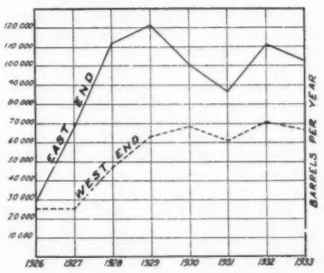
For many years after its first commercial success in 1912, repressuring was confined to stripper wells in fields from which the gas pressure had reached an advanced stage of depletion. In more recent years repressuring has been applied early in the lives of some fields to maintain the pressure. Instead of allowing the gas to waste, the pressure to fall off, and the production to decline rapidly with increasing unit production expense, it has been found that the surplus gas in the flush stages of a field can be returned to the ground with manifold advantages. The Sugarland Field in Texas, operated by the Humble Oil & Refining Co., is a notable example of this kind of repressuring, or rather of pressure maintenance. Though the field was developed without forethought of repressuring, which was not applied until several years after discovery, repressuring has made unnecessary the drilling of many wells, has conserved the gas and gas pressure, has kept the wells flowing and has made the recovery cost for the oil notably cheap.

The successful use of pressure maintenance at Sugarland has been possible because the field is owned in its entirety by the one company. Had there been divided ownership and management, it would have been impossible to work out a plan for co-operation that would have permitted this measure of success if indeed the several operators could have gotten so far as even to attempt pressure maintenance at all. So far as I am informed, all other successful pressure maintenance projects have been either where the whole pool was under one management as at Sugerland or where a large block in the pool was under one management.

The reasons for this need of large acreage for successful use of pressure maintenance in a flush pool will be obvious to even the most casual investigator. If one operator maintains a high pressure by returning his gas to the ground and his neighbor does not, he will force his oil and gas to the wells across the lines that have lower pressures and thus help them while harming his own property. At Sugarland pressure maintenance is developing a gas cap that could not be controlled under divided ownership. Nor could the full benefits of fewer wells be reached under competitive drilling, nor could the pressure be directed effectively to those parts of the field that will produce most efficiently. These and other reasons will make the success of pressure maintenance in proportion to the completeness of the unitization of the pool.

### Applied to Small Properties

Though the harmful effects of migration across property lines may not be of such magnitude in the old stripper fields, they are equally real and relatively just as important under repressuring. Theoretically a property with only two wells can be repressured, one well being used as input well, the other being used to recover the oil, but experience has demonstrated time and again that a small property seldon makes a profitable repressuring project and seldon gets its equitable share of oil. Either it benefits at the expense of its neighbors if they are foolish enough to carry more pressure, or more likely it drives its oil and pressure medium to its neighbors, if it is the more active of the two. Even though the neighbors may earnestly seek to cooperate, operations are inevitably handicapped because they must be by compromise of two or more opinions. The financial circumstances and needs of the parties will differ and there is always a limit to which give and take can overcome self interest. Troubles along the property lines are often caused by employes unbeknown to the owners. There




*Comparison of production between East and West ends Delaware Consolidated Oil Co. properties, Oklahoma*

are in all a host of problems arising in a repressured pool whose satisfactory solution requires that the artificial barriers of property lines be done away with. The more divided is the pool, the less effective will be repressuring.

A few illustrations may be given of the differences that may arise across property lines. One operator may find that most of his property will respond best to a fairly high pressure, whereas his neighbors want low pressures. One operator may insist upon operating a vacuum plant and thus compel the others to carry a vacuum on the offset wells at a needless expense. One operator may want to use gas for repressuring but cannot because it would largely migrate to his neighbors. The operator who carefully conserves his gas and returns it to the ground loses much of the benefits to less provident neighbors. There often will be a loose streak extending from one to another property, but by-passing cannot be controlled because the neighbor will not restrict his wells. There may be a high gassy property in the pool, or a gassy layer in the top of the sand which should be shut off or controlled, but this cannot be done because the owner will not sacrifice his production. There will be instances where these gassy streaks will be so wasteful that repressuring cannot be used at all except that all parts of the pool be brought under the same ownership and management. One operator will insist upon drilling new pressure wells along the property line at a needless expense and where such joint or alternate pressure wells are used, there will be endless disputes about equitable volumes and pressures and the result will be a tendency to gradually reduce both volume and pressure to the detriment of both properties. One operator will insist on overpumping his wells and keeping low fluid levels and pressures which will be harmful, yet compel the neighbor to follow suit.

The sum of these and other obstructions to efficient operation is to decrease recovery and to increase costs and expenses. The loss of profit so occasioned is largely concealed so that if the various property owners in the pool happen to be operating at some profit, they are not likely to appreciate to what extent their expenses have been increased and their income lessened. So long as they are getting any benefits at all, they are blinded to the losses of the greater profits, which the properties could be made to yield. In one of the richest pools of northeastern Oklahoma, the spectacle is being offered of needless well drilling, duplication of pressure plants, needless use of vacuum, inefficient control of bypassing.

### Other Unit Ownership Advantages

Besides the obstructions to efficient recovery caused by diversified ownership and management, there are many opportunities afforded by unit ownership for economies in costs and expenses. It is obvious that the same number of wells grouped into one property can be improved and operated at less cost than if scattered. The same output of air or gas can be had from one or more large central plants at far less first cost and operating expense. Central machine shops, truck and tractor and other facilities will represent less investment and less operating expense than the duplication of service facilities now found in divided properties. There will be more flexibility in the organization, relatively less capital tied up in stocks of materials, more effective use of salvaged materials—an important item on every old repressured property. The sum of these economies under competent management will be surprisingly large.

A fair comparison between repressuring consolidated and unconsolidated properties is provided by the experience of the Delaware Consolidated Oil Co. about which a number of articles have been written. The company owns properties in a narrow pool 7 miles long. In the east half, the company owns all but a few properties at the extreme end. In the west half it owns about half the properties. Repressuring has been going on for seven years and the peak of production has been reached and perhaps passed so that experience has been long enough to contrast the results between the almost complete unit on the east end, and the divided ownership on the west. When taken over, the two parts had almost exactly the same daily production, and so far as could be judged from the records one part was as good as the other, except that the west half averaged 200 feet deeper and therefore was somewhat more expensive to improve and the two parts are shown in the curves to operate. The difference in results of (Figure 1) and the analysis of production, expenses and profits in the tabulation which follows:

**COMPARISON OF EAST AND WEST ENDS OF DELAWARE CONSOLIDATED OIL CO. PROPERTIES FOR THE PERIOD 1926-1933, INCLUSIVE**

| | East | West | Total |
|---|---|---|---|
| Oil wells | 179 | 153 | 332 |
| Pressure wells | 32 | 17 | 49 |
| Proved acres | 1,370 | 1,130 | 2,500 |
| Net production, bbls. | 736,154.47 | 428,164.68 | 1,164,319.15 |
| Total income | $760,828.43 | $442,515.55 | $1,203,343.98 |
| Total expense | $296,658.91 | $261,483.00 | $558,141.91 |
| Income per barrel | $1.03 | $1.03 | $1.03 |
| Expense per barrel | $.403 | $.611 | $.48 |
| Total investments | $144,413.66 | $116,352.33 | $260,765.89 |
| Recovery cost per barrel | $.468 | $.702 | $.554 |
| Profit per barrel | $.565 | $.332 | $.476 |
| Operating profit to date | $416,029.60 | $142,128.41 | $558,280.11 |
| Operating profit per well to date | $1,971.70 | $836.05 | $1,465.30 |
| Operating profit per acre to date | $303.67 | $125.78 | $223.31 |

In the foregoing analysis, it is assumed that a third of the ultimate production from repressuring has been recovered to date.

Judging the future from the past seven years, the part almost completely unitized will show more than double the profit per acre or per well, this, in spite of the fact that co-operation with the neighbors on the west end has been for the most part unusually close and cordial. It cannot be claimed that the west end was leaner because past productions show this not to be the fact and where properties are well grouped, increases have been as good in the west end as in the east end. It is significant that only 17 pressure wells are on the west end to 32 on the east end, and this reflects the necessity for keeping away from the property lines and explains the lower production. This part of the property cannot be fully repressured without danger of losing production to the neighbors.

### Costs and Expenses

It must further be noted that the west end was under the same management and benefited from decreased costs and expenses by participating in a central pressure plant and large scale operations, nor were there such costs as the unnecessary drilling found in many pools repressured under divided ownership. It is obvious that had these west end properties been under several ownerships each with its separate repressuring operation, that costs and expenses would both have been much higher and profits much lower. Nor has allowance been made for amortizing the cost or worth of the properties before repressuring started and this would greatly favor the consolidated part of the property. It cannot be doubted that taking into account all factors, the disparity in favor of unitized repressuring over divided ownership is likely to be much more than the comparison here given. Making all reasonable allowances, it appears doubtful whether competitively repressured stripper pools will make even half the profits which could be made by consolidating the same properties. The sum of the three losses in oil recovery, improvement costs and operating expense are disconcertingly large and cannot be realized until actually faced as on the Delaware properties.

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**REPORTS ON A.P.I. RESEARCH**

Opinions of members of the American Petroleum Institute Advisory Committee on Research Project No. 37, "The Fundamentals of the Retention of Oil by Sand," as to use of the English or the metric units in reports has been asked by Dr. William N. Lacey, director.

*Before annual meeting, Mid-Continent district, A.P.I. Production Division, Oklahoma City, February 15.
Author's title: "Advantages of Unitization in Repressuring."

# Securing Good Waters and Disposing of Brines Are Classified as Major Oil Field Problems

By EARNEST BOYCE
Chief Engineer, Kansas State Board of Health, Topeka, Kans.*

The availability of an adequate supply of water suitable for use can easily become a controlling factor in the industrial and agricultural development of a given area. Water supply sources are provided by the storage of rain water retained in the porous ground strata and made available for use by natural springs, wells, or by the surface storage found in stream channels, natural lakes or impounding reservoirs. Large sand and gravel formations form a very important and cheap storage to supply water between rains. These formations, if they are near the surface of the ground, readily absorb rainfall and hold it available for use. It is the slow drainage of these formations that furnishes the source of dry weather stream flow.

Unfortunately, from a water resource standpoint, industrial development has taken place in regions where underground water storage is not adequate to yield supplies large enough to be useful to those who must furnish communities and industries with water. In some places the water-bearing formations, because of their solubility, yield water too highly mineralized to be of general use. Frequently the best formations for absorption occur in those areas having the least annual rainfall. The amount and monthly distribution of rainfall are also important factors in determining the amount of water available for use. Because of these geological and meteorological conditions, surface waters are very important sources of domestic and industrial water supply.

The importance of surface water resources in Kansas is evidenced by the fact that approximately 24 per cent of the entire population of the State are dependent on surface water supplies for domestic use. The streams of the State thus become an important part of its natural resources, their economic worth being measured by their ability to satisfy the needs of the citizens of the State. These needs are many are varied, and are not necessarily those which yield financial return.

Any planning of the industrial and economic development of a region must take into consideration the resources which are essential to that development. It can easily be shown that the water resources of Kansas are important and that their preservation is essential to the most complete industrial and economic development.

### Water Analyses

It is proper that the problems of stream usage be analyzed from the standpoint of the general public good with a vision to the future development of the State, as well as from the standpoint of those who would use the streams for municipal sewage or industrial waste disposal. Policies of stream usage should be designed to serve the general public best with a minimum of special advantages to some at the expense of others. Such usage may not necessarily be uniform for all streams or even for all places on the same stream. For example, in Pennsylvania it has seemed desirable that the streams of that State be classified into three groups, allowing, in the interest of the general public good, different usages in each group.

While as a general rule the public rights to a stream should control its usage, much must depend on the type of a stream and its usefulness to the public in its unpolluted state as compared with its usefulness as a drainage channel for the removal of liquid wastes incident to the industrial development of the area it drains. It is quite possible that a stream may have its greatest public usefulness in the removal of industrial waste, and that a blind effort to preserve it for aquatic life and domestic use would result in a real economic loss. If such use of a stream is unavoidable and essential to the development of natural resources and industry, it may be justified only providing that harm not be done to other interests of comparable value. However, it is very important to remember that any use of a stream that destroys or impairs its usefulness to the public, or that portion of the public that might be classed as having riparian claims, results in a more or less well defined loss to those individuals. Further, it should be observed that any city or industry that finds it possible to use surface waters of the state for the disposal of sewage or industrial wastes, and by such use avoids the expense of providing adequate disposal facilities, is obviously financially ahead by the cost of such disposal works and their operating charges.

It is almost inevitable that there shall be a conflict of interests in stream usage. It follows then, that any comprehensive plan for the control of stream usage should recognize the necessity for proper adjustment of riparian claims when a conflict of interests in a stream is unavoidable. We should keep clearly in mind that while a stream may be the property of the owner of the land across which it flows, his title to the stream ends with his property line. Other owners have riparian claims to the unimpaired use of the stream as it flows through their property.

ANALYSES OF WATER SAMPLES OBTAINED FROM SELECTED REPRESENTATIVE PRODUCING AREAS IN OKLAHOMA

| | Sample 1 | Sample 2 | Sample 3 | Sample 4 | Sample 5 |
|---|---|---|---|---|---|
| Radical— | p.p.m. | p.p.m. | p.p.m. | p.p.m. | p.p.m. |
| Calcium | 10,762 | 5,530 | 4,708 | 12,832 | 1,254 |
| Magnesium | 3,691 | 1,625 | 1,929 | 2,748 | 396 |
| Sodium | 76,915 | 36,914 | 84,058 | 75,400 | 12,239 |
| Carbonate | ..... | ..... | ..... | ..... | ..... |
| Bicarbonate | 31 | 177 | ..... | 92 | 119 |
| Sulphate | 348 | 2 | 44 | 184 | 8 |
| Chloride | 145,244 | 71,361 | 66,486 | 146,804 | 22,161 |
| Total solids | 235,982 | 115,609 | 107,235 | 238,045 | 36,167 |
| Specific gravity at 60° F. | 1,162 | 1,081 | 1,076 | 1,162 | 1,026 |

### Value of Water

The value of our water resources may be expressed both in terms of quantity and in terms of quality of water available for use. The development of a watershed by cultivation, deforestation and other modifications of the soil covering may increase the soluble and insoluble mineral matter carried by the stream. The quality of water may be modified by the discharge of organic or chemical compounds into the stream that are capable of undergoing changes which destroy the usefulness of the stream to others. In so far as oil field brines are concerned, we are dealing with a modification of water by addition of wastes that are, for the most part, chemically and biologically inert, but which because of their concentrations impart an objectionable characteristic to the water that at least decreases its further usefulness.

We have reviewed briefly the general problem of water resources, and have attempted to show the economic importance of devoting considerable thought to the problem of brine disposal. This is one of the most troublesome problems of the oil producer through the Mid-Continent Field. The brine brought to the surface with the oil may have its origin in the rock overlying the impervious formations against whose under surface the oil and gas have collected, or it may come from the formations that underlie the oil horizon or it may be a mixture of both top and bottom water.

### Oil Field Brines

The significance of oil field brine is indicated by the fact that most wells are abandoned while they are still capable of producing some oil, but due to the increased proportion of brine to oil pumped to the surface further operation ceases to be economical. The economic limit of the oil to water ratio that will permit continued operation depends on the cost of maintenance and pumping, the cost of brine separation and disposal, and the value of the crude petroleum produced.

Petroleum geologists have estimated that by the commonly used methods of flowing and pumping, less than half of the oil is recovered from producing formations. The subsurface movement of oil field brines plays an important part in controlling the life of a producing field. Movements of salt water are created by an unbalancing of pressure due to the removal of gas, oil and salt water incident to the development of the field. Movement must of necessity be toward areas of reduced pressure, i.e., the area of oil-producing formation. The path of travel may be either through natural faults, fissures, solution channels, openings made by drill holes, or through the interstices between sand grains displacing the oil in the direction of the reduced pressure area centering about the well being pumped.

Due to the lesser specific gravity of oil as compared with salt water it has a tendency to move upwards toward the surface of the ground until stopped by gas-locked passages or impervious formations. Hence, it is logical to presume that in general no natural openings exist for the escape of oil or the entranse of salt water except on the edges of the impervious cap rock, below the bottom of the oil-water horizon. The migration of salt water from formations of higher to those of lower pressure, through imperfectly cased producing wells or carelessly plugged abandoned drill holes, is guarded against by laws and by the cooperative effort of those oil companies that appreciate the dangers of such salt water migration.

Migration of brines from higher formations to lower oil producing formations may be expected to occur naturally in most fields as the oil is removed from below the impervious rock. It is important to note, however, that it must enter the oil-producing formation below the original oil-water horizon if it enters through natural passages. Failure to confine top water formations during the drilling of a well may result in a movement of the water downward to the bottom of the well, permitting it to enter the casing with the oil. Excess water entering the oil formation through a well will tend to flood the oil formation, thus reducing the volume of available oil, and may become a primary cause for abandoning the well. Improved methods of well drilling including the cementing of the annular space between the casing and the drill hole have greatly reduced this salt water hazard in properly drilled new wells, and to a limited extent have made possible the reconditioning of existing wells resulting in an increase in oil production and a decrease in the salt water.

### Underground Flow

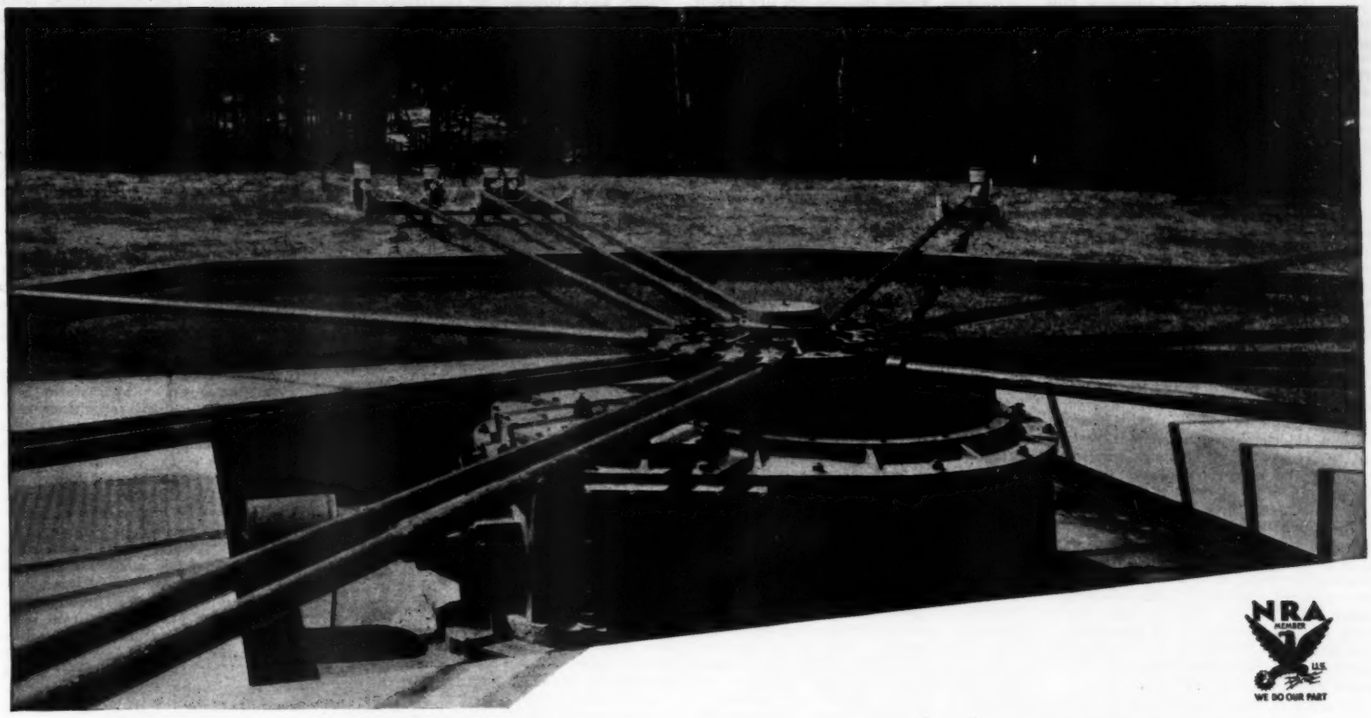
The production of an increased flow of salt water from a well when pumping is resumed following a shutdown is evidence that the removal of oil has created an unbalanced hydraulic condition in the water and oil-producing formations, and that static stabilization has required an oil and water migration. In some cases static stabilization is produced by a downward movement of the top water through the opening made in the cap rock by the drilling of the well with the consequent flooding of the producing formation. Any leakage of top water through the cap rock into the oil-producing formation adds to the water pumped to the surface along with the oil. Proper repairs greatly reduce the salt water producing of such wells. If the hydraulic stabilization could be limited to water movements through natural openings, the movement would be from below and from the side of the oil formation with a minimum disturbance of the oil water horizon.

The second source of salt water in a producing well is from the formation underlying the production horizon. This may be caused by the drill hole penetrating too far into the oil-producing formation, making it possible for the bottom water to enter the well with less resistance than the oil, or by pumping at a rate greater than the rate of oil movement to the well, thus causing the bottom water to rise (usually referred to as "coning"). In the first case, bottom plugging has been useful in reducing the volumes of water pumped and in the second case a reduced pumping rate is indicated. Unfortunately the source of water may be difficult to trace. Brines that have had long contact with oil formations may have distinctive modifications that identify them from water coming from top formations. This modification is usually indicated by a marked reduction in sulphate content as compared with other deep-seated waters in the same area, a change that has been attributed to a reducing action of the petroleum compounds. Regardless of the salt water that may enter a well due to imperfect construction or improper operation in most fields, bottom water may be expected to rise under hydrostatic head as the oil is pumped and eventually reach the well as the center of the reduced pressure in the oil formation. Therefore increased salt water production may be anticipated in most oil fields as the available oil is depleted and its appearance does not of necessity indicate improper development. From this brief review it is evident that most oil producing areas sooner or later have to solve the problem of oil field brine disposal.

This disposal problem becomes a serious one when the streams draining the producing areas must be used as sources of water supply. Since the wastes produced are of mineral nature they are usually inert and do not change except in intensity. Unless there is water available for dilution, the concentration can easily become great enough to destroy the usefulness of the stream for purposes other than waste disposal.

Satisfactory disposal by dilution re-

*Before Production Division, Mid-Continent district, A.P.I., Oklahoma City, Okla., February 15.
Author's title, "The Problem of Oil Field Brine Disposal."

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quires that there must be adequate flow in the stream at all times. There are two ways of doing this: First, by holding the wastes in reservoirs until the natural flow of the stream will give adequate dilution, and second, by increasing the dry weather flow of the streams by a controlled discharge of water impounded above the source of these mineral wastes.

### Stream Pollution

The big difficulty in the problem of releasing mineralized waters stored during periods of low flow is the lack of adequate control authority to give permission to discharge. There must be definite information available regarding river stages in order to know how much mineral waste can be disposed of by dilution. Stream flow measurements and rainfall data must be obtained and made immediately available to some responsible authority whose duty it would be to control the discharge of these wastes.

The amount of chloride calculated as sodium chloride or common salt carried in the Neosho River at times will serve to show the magnitude of the problem. In the fall of 1923, with a flow of only 160 second feet, there was approximately 772,500 pounds or over 360 tons of salt being carried down the river every day. It is also of interest to note that half of this amount could have been carried without cause of complaint from other riparian users of the stream. This could have been accomplished by impounding half of the salt water that was being produced, or by releasing impounded fresh water to double the flow.

In order to give some idea of the highly mineralized nature of some brines produced in the Mid-Continent Field, the accompanying table of analysis of five typical Oklahoma brines is included. This is from the Report of Investigations, U. S. Bureau of Mines No. 2,945.

From these analyses it will be noted that sodium, calcium and magnesium chlorides predominate, not infrequently smaller amounts of rarer salts are found including iodides, bromides and barium salts. It is of interest to note that the total solids in Sample No. 4 in the table total approximately 2 pounds per gallon. Due to the mineral inertness of the compounds in solution, no treatment method can be applied to remove or greatly modify the objectionable characteristics of the brines. When we compare the concentrations of these brines with the limits of potable drinking water as recommended by the U. S. Public Health Service, the pollutional effect of the brines becomes apparent. On the basis of total solids the maximum value in the U.S.P.H.S. standards is 1,000 p.p.m. as compared with the value 238 times as great observed in Sample No. 4.

Chlorides should not exceed 250 p.p.m. as compared with 146,804 p.p.m. in Sample No. 4 or 587 times the permissible limit.

The Standard maximum limit value of magnesium of 100 parts per million has been exceeded 27 times in this sample. From this comparison as well as others that have formed the basis of complaint from oil field pollution, it is evident that the chloride concentration is the first to become objectionable. Assuming that a well produces brine of a concentration comparable with the above sample and at a rate of 1,000 bbls. per day, a flow of chloride-free water at a rate of 47.4 c.f.s. would be required to dilute the brine to prevent an excessive chloride content in the receiving stream.

### Kansas Conditions

It is interesting to note that one Kansas Field produced a total of 43,393 tons of chloride salts in the 12-month period ending November 1, 1933. If this amount of salt was to be diluted so that the mineral content would not be increased more than 10 grains per gallon, it would have required a continuous discharge of 3,000 bbls. per minute of diluting water.

The amount of water available in the average Kansas stream during the periods of low flow does not approach the amount required to provide adequate dilution to the oil field brine produced. This condition first becomes evident in upper tributaries where channels are dry except for storm water flow. The failure to secure adequate dilution from natural runoff is most acute in the immediate vicinity of a producing oil field, but as a period of low rainfall and runoff continues the diluting effect downstream of the flow from the larger drainage area fails to reduce the concentration to potable limits. Further, channel storage in the streams near the oil field becomes filled with an increasing concentration of brines. If this concentration of brines is removed during quick heavy flood a dilution may be secured that will avoid complaint. If the flood is slight it may displace the channel storage downstream without adequate dilution and give cause for complaint at points at considerable distance from the oil field source.

In order to make use of the dilution effect of flood water and thus avoid complaints and damage suits from riparian claimants using the surface water, receiving oil field drainage, many oil companies have made use of salt water ponds for storage and evaporation. Where the surface water is to be protected, the use of ponds from the uncontrolled discharge of salt water during periods of flood in the receiving stream would seem to be a satisfactory method of disposal by dilution. While solar evaporation offers a possible method of brine disposal, actual rates of evaporation have not been fully studied and many operators do not differentiate between evaporation and seepage. Unfortunately, seepage is hard to control and sites for adequate storage are difficult to find and expensive to develop. Isolated ponds on producing areas are not easily controlled and may be drained without adequate dilution being available.

Co-operative agreements between producers make possible the construction of large salt water storage reservoirs, into which all the salt water produced in the field is pumped and from which it may be discharged, under control, to maintain satisfactory dilution conditions in the receiving stream. While it may be that the total cost of storage in large reservoirs will be more than the cost of storing the salt water on individual leases, the need for an adequate control of the discharge into the receiving stream makes storage in large reservoirs desirable.

In Kansas the only large scale storage for disposal of mineral water by dilution is located at the refinery of the Standard Oil Co. of Kansas at Neodesha. Here a reservoir covering 65 acres can be filled to a depth of from 12 to 14 feet and provides storage for the waste water from the refinery for one year. This has successfully controlled objectionable pollution from this source of the river water supplies of Cherryvale, Independence and Coffeyville for the past 10 years. Seepage is effectively controlled by trenching around the reservoir and repumping.

Aside from field evaporation or controlled discharge into adequate volumes of diluting water, two other methods of brine disposal may be considered. First, the evaporation of brines under plant conditions for the recovering of mineral salts; and second, the return of the brines to underground formations.

The use of oil field brines as a source of mineral salts of commercial value offers possible revenue. Experience with brine evaporation for the production of a commercial product has been tried at Sand Springs, Okla. From available data it would seem that this method is feasible only if the brines contain sufficient amounts of the rarer salts. It is possible that the revenue from the sale of salts recovered from concentrated brines may be used to offset part of the cost of brine disposal, and that the net cost may compare favorably with other methods of disposal. Aside from the plant evaporation of oil field brines, all other methods for surface disposal are ultimately dependent on dilution. When diluting water is not available during periods of minimum runoff, the cost of salt water storage may become the controlling factor in determining when the well can no longer be operated with profit.

### Return to Formation

The second method of brine disposal, its return to underground formations, as yet little used, warrants consideration. The removal of oil and salt water from producing formations must of necessity leave the rock openings, formerly filled by the pumped oil and water, either filled with gas or with water that has moved into the space under hydrostatic head. While in some geologic formations there is evidence that the removal of petroleum results in a compacting of the producing formation due to the pressure of overlying formations, there is no known evidence that the oil-producing formations of Kansas are so compacted. Unless these formations are reduced in volume, it follows that salt water might be returned to the oil-producing sands for it is obvious that the salt water is of less volume than the salt water and oil pumped from the well. Solar evaporation from ponds might be useful in reducing the volume and increasing the concentration of brines before their return to salt water formations. If we accept the theory that the brine underlying the oil rises in the structure as the oil and gas are removed, it follows that at some point an equal volume of water might be added to replace the brine that has moved into the producing formation without disturbing its hydrostatic balance. When the gas pressure of a new field has been exhausted, the water and oil will seek a static level in the well which, when corrected for density difference, is the top of the ground water table connecting with the bottom water holding the oil perched inversely beneath some impervious formation.

Oil operators have regarded the return of salt water to underground formations with justified concern due to the danger of adding excessive volumes of water to the producing formation and causing the migration of the oil, thus disturbing the natural distribution of oil between the wells of competing companies and different lease owners. The cause for concern would be greatest if each producing company attempted to use underground disposal individually on their own leases. Any geological study of the possibility of underground brine disposal should be located on the side of the structure and far enough removed that unbalanced water pressure over the producing area would be avoided. While some attempts to return salt water to underground formations have not been successful, there is reason to believe that the most of the difficulties encountered have a workable solution. Further investigation of this method of handling salt water should be by those having a thorough knowledge of the movements of underground waters as related to the geology of each particular field investigated.

In seeking a solution of the problem of brine disposal, we should study the situation existing or anticipated in each field and apply the methods of disposal that are best adapted to that particular area. Failure to plan for the disposal of anticipated brine production invites expensive litigation and damage suits—and money paid in damages does not restore destroyed water resources.

It is possible that progress in the ultimate solution of this question will be hastened by a more general policy to regard it as a technical problem of production rather than one to be referred to the claims department for settlement.

The financial burden of damage claims that threaten the industry can be abated only by a systematic planning for brine disposal—a planning that can best be done by the technical personnel of the producing companies.

# Use of Colored Cloth Derrick Covers Improves Drilling Rig's Appearance

There is little need of explaining this picture to the oil man, but to the uninitiated this is a water-proof canvas cover and wind break for a steel rotary drilling derrick. It is installed upon a 122-foot derrick used in drilling a rotary hole on the Wirt Franklin Petroleum Corp.'s Theimer lease, known as their No. 5 well.

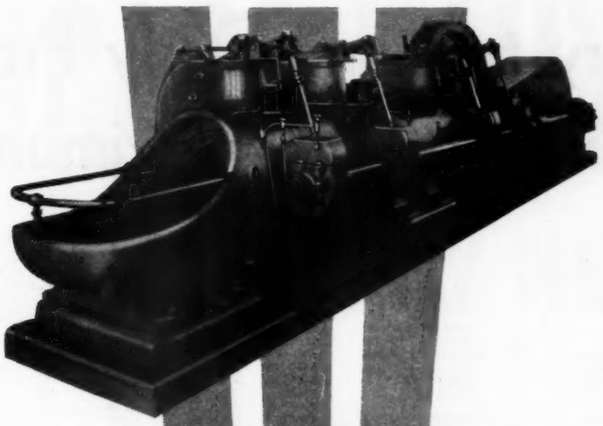
Because drilling derricks are only used as such for a comparatively short time it is the usual practice to permit the drilling crew to "rig up" as they desire and when their work of drilling the hole has been completed they strip the derrick of all their equipment.

This practice has led to many different types of derrick accessories being used in different countries and oil fields. In many European countries it is common practice to completely enclose the derrick with boards. This is done to confine, as much as possible, the spray from a new well and prevent it from blowing over adjacent property.

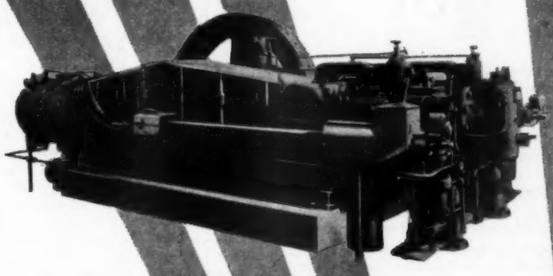
Up around the fourble board, that is, the place where the derrick man stands to hook and unhook drill pipe from the traveling block, it is usual practice in every field to provide some kind of wind break. This position is approximately 80 feet from the derrick floor, and when the derrick is mounted upon high concrete piers it is still further from the ground. So the wind blowing through this elevated perch can be very uncomfortable as well as dangerous even though the derrick man is wearing his safety belt.

The Oklahoma City Tent & Awning Co. deserve credit for having designed and made the water-proof cloth wind break shown in this picture as well as the cover for the derrick base. These covers are made of a treated fabric that will shed and not absorb oil. The several pieces are joined together with conveniently placed lacings and the covers can be easily removed and reassembled at another derrick as desired. The cloth may be had in different colors, and it is quite possible that the future oil fields may present an interesting study in pastel shades selected to express the driller's temperament and individual taste. And this will certainly be a big improvement over the miscellaneous junk so often seen serving as covering now.

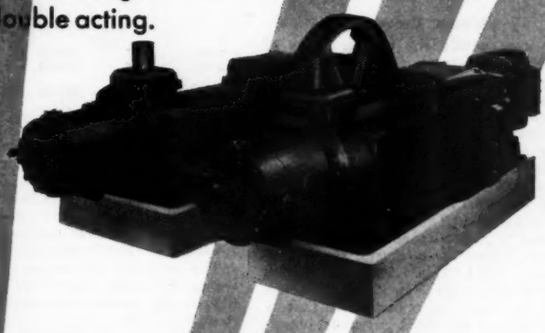
*Drilling rig in Oklahoma City field fitted with colored cloth windbreak and cover*



Type-19 gas engine or gas-engine driven compressor unit. 200 to 800 B.H.P. Single or twin cylinders; four-cycle; double acting.



Type-80 gas engine or gas-engine driven compressor unit. 85 to 190 B.H.P. Single or twin cylinders; four-cycle; single acting.



Type-10 gas engine driven compressor unit, 100 and 200 B. H. P. single or twin cylinder, two-cycle, single-acting.

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# It Is Necessary to Limit Daily Production Rate in East Texas to Get Maximum Recovery

By C. E. REISTLE, Jr.
Chairman, East Texas Engineering Association*

In the East Texas Field, at the present time, January 29, 1934, there are 12,170 producing wells and approximately 70 new wells are being completed each week. The average well spacing at the present time is approximately one well to 9.5 acres. Of the 12,170 wells, 1,702 are classified as marginal wells and allowed to produce 20 bbls. per day, the remaining 10,468 wells are allowed to produce 5 per cent of their one-hour potential. The total allowable production for the field January 29 was 399,095 bbls.

### Ultimate Recovery

The area within the proven limits of the field at the present time is approximately 116,580 acres. The average thickness of sand section in Woodbine formation within productive limits of the field is approximately 47 feet and of this total section approximately 35 feet is sand of sufficient porosity and permeability to yield oil. There are, therefore, approximately 4,080,300 acre feet of oil-saturated sand in the field. The average porosity of the sand is generally accepted to be 25 per cent. Using these figures, there were originally 7,914,109,000 bbls. of oil and dissolved gas in place in the East Texas Field. It must be remembered that 1 bbl. of oil and dissolved gas under reservoir conditions will shrink in volume when brought to the surface and measured in the lease tanks, due to the liberation of gas and contraction in cooling from the reservoir temperature of 146° F. to 60° F., the temperature at which its volume is calculated at the surface. Ben E. Lindsly of the U. S. Bureau of Mines, in his study of bottom hole samples of the East Texas crude, found that 1 bbl. of oil measured under reservoir conditions shrinks to between 0.696 and 0.792 bbl. when the dissolved gas is liberated and the oil measured at atmospheric pressure and a temperature of 75° F. Using the figures of the Petroleum Economics Division of the U. S. Bureau of Mines, the cumulative production of the East Texas Field up to and including December, 1933, was 429,992,000 bbls. The Oil and Gas Journal figures for the same period are 432,541,000 bbls. Using the shrinkage factors previously mentioned, this cumulative production would be equivalent to between 617,805,000 and 542,919,000 bbls. of oil as it originally existed in the sand, and indicates that between 7.8 and 6.9 per cent of the oil originally in place in the East Texas Field has been recovered up to and including December, 1933.

While it is a comparatively simple matter, in view of our present information, to calculate the percentage of the original oil in place that has been produced from the East Texas Field, it is a much more difficult problem to predict what the ultimate recovery of the field will be. The ultimate recovery of oil from the East Texas Field will undoubtedly depend to a large extent upon the manner in which the field is produced. If the field is allowed to produce at high rates of production, the reservoir pressure energy will be rapidly dissipated, the dissolved gas will be liberated, increasing the viscosity of the oil, water encroachment will be more rapid and more irregular, thereby trapping off large quantities of oil which would otherwise be recovered. All of these factors will tend to reduce the ultimate quantity of oil that will be recovered. Although I intend to touch on the flowing life of the field in another part of this paper, I would also emphasize the following fact at this time: Not only will the ultimate recovery of the field be seriously decreased but the lifting and operating costs will be greatly increased if the field is allowed to produce at high rates of production such as 700,000 or 800,000 bbls. per day.

**TABLE 1**

| Date— | Well No. | Rate of prod., bbls. per hr. | Number of offset wells tested | Distance of offset wells from prod. well | Reservoir press. in offset wells Start | Reservoir press. in offset wells Finish | Decrease in reservoir press. of offset wells in lbs./sq.in. | Time in hours |
|---|---|---|---|---|---|---|---|---|
| 6-1-33..... | 1 | 759.94 | 1 | 648′ NW | 1,295 | 1,290 | 5 | 1½ |
| 6-2-33..... | 2 | 339.81 | 1 | 856′ NW | 1,313 | 1,290 | 23 | 2 |
| 6-2-33..... | 3 | 254.37 | 3 | 730′ SE | 1,127 | 1,099 | 28 | 1 |
| | | | | 950′ NE | 1,277 | 1,259 | 18 | 1 |
| 6-6-33..... | 4 | 498.46 | 2 | 680′ SW | 1,244 | 1,234 | 10 | 2 |
| | | | | 660′ SE | 1,201 | 1,090 | 11 | 2 |
| 6-3-33..... | 5 | 803.00 | 3 | 1,250′ W | 1,271 | 1,271 | 0 | 3 |
| | | | | 330′ NE | 1,236 | 1,218 | 8 | 2 |
| | | | | 700′ W | 1,260 | 1,248 | 12 | 3 |
| 6-2-33..... | 6 | 721.50 | 5 | 425′ N | 1,226 | 1,216 | 10 | 2 |
| | | | | 660′ E | 1,278 | 1,276 | 2 | 3 |
| | | | | 700′ NW | 1,271 | 1,260 | 11 | 2½ |
| | | | | 660′ S | 1,258 | 1,242 | 16 | 2 |
| | | | | 750′ SW | 1,275 | 1,261 | 14 | 3 |
| 6-1-33..... | 7 | 605.00 | 1 | 970′ E | 1,131 | 1,096 | 35 | 2 |
| 6-2-33..... | 8 | 502.50 | 2 | 660′ S | 1,395 | 1,378 | 17 | 2 |
| | | | | 700′ E | ..... | 1,348 | 4 | 1 |
| 6-5-33..... | 9 | 572.72 | 1 | 700′ SW | 1,376 | 1,366 | 10 | 2 |

The general consensus of opinion among engineers that have studied the field is that under the most unfavorable conditions with respect to operation of the field, that at least 40 per cent of the oil originally in place will be recovered and that more than 50 per cent of the oil originally in place will be recovered if the field is operated in such a manner as to conserve the reservoir energy and prevent the rapid encroachment of water. Using these recovery figures, the ultimate recovery of oil will be from 2,203,288,000 bbls. as a minimum to in excess of 2,754,110,000 bbls., depending upon the manner in which the field is allowed to produce within the next few years. This difference in recoverable oil (550,822,000 bbls.) is sufficient to supply the entire demand of the United States at the present rate for a period of 233 days, and is greater than all the oil that has so far been produced from the field.

### Reservoir Performance

The East Texas Field is somewhat unusual in that there is no free gas associated with the oil in the main part of the reservoir. Under such conditions the gas-oil ratio is constant regardless of the manner in which the wells are produced, providing the reservoir pressure surrounding the well is above the saturation pressure. The exact pressure at which the oil is saturated with gas at reservoir temperatures was determined by Lindsly to be 755 pounds per square inch absolute. The oil and gas solution in the reservoir act as one liquid and the pressure must be lowered below 755 pounds per square inch gauge before free gas will be liberated from the oil and gas solution. In substantiation of Mr. Lindsly's work, D. G. Hawthorn and many other engineers have determined the point at which the oil is saturated with gas by measuring the pressure drop in the tubing of flowing wells. The results of these tests are in very close agreement with the more accurate laboratory work of Lindsly's.

While the East Texas Field is probably the first field in which it was actually known that no free gas existed in the reservoir at the time the field was discovered, there probably have been many other developed fields in which the same conditions existed. It has only been through the perfection of instruments, such as recording pressure gauges and sampling bombs which can be run into wells, and our rapid advancement in the true conceptions of the physical conditions which exist in oil reservoirs that has made it possible to know the physical state of the oil and gas as it exists in the reservoir sand. At no time in the history of the field has the reservoir pressure been reduced to a point where liberation of gas from the oil and gas solution would occur in the reservoir sand.

It is apparent from the data that the pressure decline is a function of the rate of production. The pressure has increased each time the field has been closed in and the reservoir pressure has increased since the field production has been decreased following the months of April, May and June, 1933, when the field was producing between 800,000 and 1,000,000 bbls. of oil per day. These facts clearly prove that there is a positive movement of water into the sand tending to maintain the pressure within the reservoir. These data also show that the magnitude of the pressure energy which can be supplied to the oil-bearing part of East Texas reservoir system, by the movement of water, is a function of the rate of movement of the fluids within the reservoir. To further substantiate the fact that water is moving into the field and filling the space created by the removal of oil, calculations have been made to estimate the average pressure in the field, assuming that only 75 per cent of the oil had been produced by water. Using the expansion curves of the oil and gas in the reservoir as developed by Lindsly, the calculated average reservoir pressure in the field at the pressure time would be approximately 530 pounds per square inch absolute if the water movement into the field had only been sufficient to fill 75 per cent of the space that has been created by the production of oil up to the present time. This, of course, is absurd as the average reservoir pressure at the present time is in excess of 1,270 pounds per square inch gauge.

In addition to the behavior of the reservoir pressure, which clearly indicates the effectiveness of water movement into the field, there has also been a regular and comparatively uniform appearance of water in west side wells, as the water has risen to the point at which these wells penetrated the sand. In November the weighted average depth of some 300 wells (there are approximately 500 wells producing traces or more of Woodbine water at the present time) indicated that the water table had risen to an average level of 3,310 feet subsea. This checks very closely with the average water table, as calculated from the space created by the known production of oil. Since the discovery of the field the average rise in the water table has been between one-eighth and one-tenth of an inch per day. Although the majority of wells making water are along the western boundary of the field, it must be remembered that any or all of the wells in that part of the field underlain by water would produce water if drilled to the depth of the water table. Numerous wells have been drilled into the water-bearing part of the sand in this area but in most cases they have been successfully plugged back and water troubles eliminated.

In some local areas an abnormally high water table is encountered. This condition is undoubtedly due to dense drilling resulting in excessive withdrawals or local sand conditions. Two areas where the water table has risen abnormally high are the Overton and Gladewater townsite districts where very close drilling has occurred.

### Flowing Life

While experiments have proven that there is sufficient energy available in the oil and gas solution so that wells in the East Texas Field will flow when the pressure at the bottom of the well is as low as 400 pounds per square inch, this should not be interpreted to mean that under all conditions it will be practical or possible to produce the wells by natural flow at such low pressures. Unfortunately, it is impossible to produce the wells continuously and as a result, during the periods the wells are shut in, the gas associated with the oil that has entered the wells rises above the oil and is no longer available to lift the oil to the surface. Under these conditions experience has shown that a reservoir pressure of between 1,000 and 1,100 pounds per square inch is required before the wells will naturally start flowing when opened up. Therefore it is necessary to either provide some artificial means of starting the wells or to pump the wells when the reservoir pressure has declined to this point.

This should not be interpreted as applying to wells in which the bottom-hole pressure declines to a point below 1,000 pounds while flowing. There are numerous naturally flowing wells in the field where the flowing pressure at the bottom of the well is below 600 pounds per square inch. However, in these wells the surrounding reservoir pressure is sufficient to build up the pressure in the wells and in the area immediately surrounding them to in excess of 1,000 or more pounds per square inch pressure, while the wells are closed in and they will therefore start to flow naturally when opened.

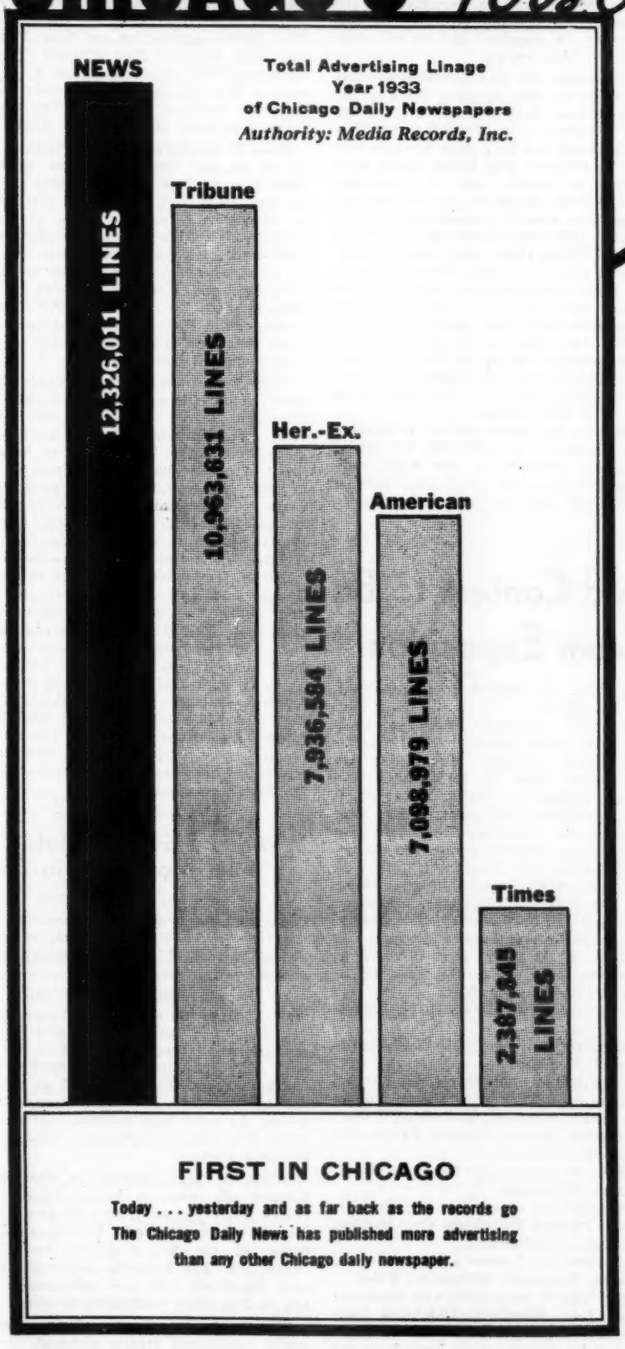
It is impossible to predict the flowing life of the field without taking into consideration the rate at which the field will be produced. It seems apparent in view of the reaction of the reservoir pressure since last September that if the production of the field is kept near or below 400,000 bbls. per day that the reservoir pressure will not decline sufficiently during 1934 to cause many more wells to cease flowing than were affected during the low pressure period in June and July, 1933. This, of course, does not apply to those wells on the west side of the field where normal water encroachment will gradually necessitate the installation of pumping equipment.

However, if higher rates of production are permitted there will be a greater rate of reservoir pressure decline and a more rapid increase in the number of wells where some artificial means will be required to either start the wells or pump their production. For example, if the high rates of production for April, May and June, 1933, had continued it would

*Before annual meeting, Mid-Continent district, A.P.I. Production Division, Oklahoma City, February 15.
Author's title, "East Texas Production."

# THE CHICAGO DAILY NEWS

## CHICAGO'S *First* DAILY NEWSPAPER




*First*

IN 1933 IN
TOTAL ADVERTISING
RETAIL ADVERTISING
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AUTOMOTIVE ADVERTISING
DEPARTMENT STORE
ADVERTISING
AND
★ HOME COVERAGE

## THE CHICAGO DAILY NEWS

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probably have meant that a large part of the field would be pumping at the present time.

In order for an operator to intelligently predict his pumping requirements he should not only keep informed as to the reservoir pressure conditions on his own properties but in addition, the reservoir pressure conditions of the entire field. In this way he can see in advance the general trend of the change in reservoir pressure and how it will effect his properties and also how his own particular wells are responding to the general change in pressure. Isobaric maps have been prepared by G. L. Nye, engineer of the Tide Water Oil Co., and are part of the record he uses in studying field conditions and predicting pumping requirements. It has been the practice of the companies in the field who measure the bottom hole pressures on their properties to exchange these data in order to obtain a better picture of the entire field conditions. These data are assembled by the Engineering Association maintained by a group of the companies in the field and isobaric maps are prepared and distributed to the member companies as a part of the work carried on by this association. In this way the companies are able not only to see how the field is responding to the different rates of production, but they are also able to plan operating practice and develop their properties in conformity with the conditions that can be foreseen from these data.

A study of the isobaric maps for January and July show very clearly the rapid loss in reservoir pressure resulting from the high rates of production during the first part of 1933. The December, 1933, map shows a distinct improvement in reservoir pressure conditions. In July many wells in the field were rapidly approaching the point where they could no longer be operated by natural flow. Since that time these low pressure areas have been built up and their flowing life lengthened.

### Pumping Wells

There have been between 1,250 and 1,700 wells equipped or partially equipped for pumping. It is doubtful, however, if more than 600 of these wells actually require pumping at present. Some companies have installed large pumping powers with the intention of pumping their wells with rod-lines and jacks. There have also been some electric installations where a central generating plant supplies power for from 8 to 10 wells. The majority of wells, however, has been equipped with individual pumping units.

While a special permit must be obtained to use air or gas lift, it is apparent that this method will be used extensively. More than 700 permits have been granted to use air or gas lift; however, it is estimated that less than 50 wells are now being operated in this manner.

### Well Spacing

Under the original rules promulgated by the Railroad Commission a well spacing of one well to 20 acres was adopted. However, this rule was later modified and a spacing of one well to 10 acres was permitted. While there has been an attempt made to enforce this regulation, numerous exceptions and special permits have been granted and the average well spacing is now one well to 9.5 acres. Seventy to seventy-five per cent of the entire acreage of the field is drilled to a spacing of one well to 10 acres or more. The remaining 25 to 30 per cent of the acreage has an average spacing of approximately one well to 6.1 acres. This condition has resulted in some localized low pressure areas and rapid water encroachment.

While the average well spacing is already more than sufficient to produce the field, there are many operators that have no other recourse under the present rules and regulations than to drill additional wells in order to protect their interests and recover their fair share of the oil underneath their leases. It is estimated that it would require the drilling of 4,000 wells to give the field a uniform well spacing of one well to 6.1 acres.

A study of the data on the pressure conditions in offset wells shows conclusively that under the reservoir conditions existing in East Texas that the area affected and drained by one well is in excess of 10 acres.

Under these conditions it is particularly unfortunate that such a large number of wells have been drilled and that many additional wells will be drilled.

The production of water at the present time is comparatively small and is estimated to be approximately 5,000 bbls. per day. This small amount of water can be easily handled on the different leases by earthen pits. The disposal of large quantities of water apparently will not be necessary for several years providing the field is produced in the manner it is now operated.

In addition to the normal appearance of Woodbine water in west side wells and wells drilled to or below the water table, there have been approximately 150 wells that have made water in the area that is not underlain by the Woodbine water. This water has never appeared in large quantities and, although it never has been definitely proven, it seems quite probable that this water is upper water that has entered the wells and producing sand through faulty water shutoffs and leaky casing. In view of the amount of second hand pipe and inferior casing used in a large number of wells it does not seem surprising that this condition has occurred.

### W. A. LEE KILLED

W. A. Lee, 42, field superintendent for the Humble Oil & Refining Co., Daisetta, Tex., was killed on February 3 in an automobile accident while en route to Orange to see his wife, who is critically ill.

## Geophysical Prospecting Shows Need for Reserves

(Continued from Page 16)

three years between 80 and 100 structures have been mapped in Oklahoma. The area covered has been both east and west of the buried Nemaha granite mountain range upon which the Oklahoma City Field is located. Some work has been done in southern and southwestern Oklahoma. While a relatively large number of structures have been mapped and acreage leased covering them it may be said that they are usually very small as oil fields go. They range in size from 300 to 1,000 acres each. However, all the land covering a small structure of this kind may be acquired by one oil company—an ideal set-up.

In Kansas the geophysical work has been done in those counties lying in the south central portion of the State along what is known as the Voshell trend. This type of work has been done for two reasons. To evaluate land before leases were allowed to expire, and to determine whether wells should be drilled and approximately where to locate them.

Along the Gulf Coast and in southwestern Texas there are a lot of geophysical parties at work. They are mapping many structures but none of them to date have been of very large size. When they have been found to be productive they still fail to place in sight any appreciable portion of the oil actually withdrawn from the underground reservoirs during the time they were being discovered and drilled.

This can be illustrated by comparing the oil produced in 1933 with the initial production credited to new wells completed last year. In the Annual Edition of The Oil and Gas Journal, January 25, 1934, James McIntyre states that the oil produced during 1933 totaled 901,293,323 bbls. from 319,419 reported wells as of December 31, 1933, or an average of 7.73 bbls. per well.

In the same issue in another table Mr. McIntyre records that there were 8,068 oil wells completed in all fields in this country in 1933 having an estimated initial capacity of 3,016,502 bbls., or an average of 373.9 bbls. During 1932 there were 10,444 completed oil wells, so even completions did not equal the former number, largely due to the slowing up of activity in East Texas.

These figures indicate that the average daily production was about 2,460,000 bbls. and the new wells have an estimated capacity of 3,000,000 bbls. daily. This initial production in East Texas and Van Pool in East Central Texas represents only short-time flow ranging from a few minutes to one hour and therefore does not reflect the true production capacity of these new wells.

Even if the estimated daily initial capacity of the wells discovered during 1933 amounted to 3,000,000 bbls. it is not enough margin over daily still runs to satisfy the actual needs of this country. With the intensive exploratory field work that has been carried on in all areas no really large structures have been developed. There is a record of 23 structures of more than 5,000 acres tested within the past two and one-half years that were all nonproductive of oil in commercial quantities.

These conditions seem to require that there should be a more active drilling campaign started at once on all likely structures. More crude oil must be put in reserve if the industry is to be assured of an adequate supply from fields in this country during the next few years, to say nothing of future supplies for periods of 25 to 100 years hence. Wallace E. Pratt, chief geologist for the Humble Oil & Refining Co., pointed out in his article published in The Oil and Gas Journal, July 16, 1931, that not less than 20,000 new wells should be drilled each year. His advice was not generally heeded by the industry, but it is understood that it was followed by his own company with the result that it is now reported that the Humble Oil & Refining Co. has a reserve equal to 300 bbls. of oil for each share of stock. The latest report shows that there are 8,923,935 shares of new Humble Oil & Refining Co. stock outstanding.

# Committees for First Aid Contest to Be Held at Tulsa Petroleum Exposition

First aid, an integral part of the training for workers in the oil industry, will be given an important part in the International Petroleum Exposition and Congress in Tulsa, May 12 to 19, when the contests will be held for the sixth time, according to G. O. Lockwood, of the Empire Companies, Bartlesville, Okla., chairman of the executive committee. At the 1930 show more than 25 companies entered teams in the Mid-Continent Petroleum First Aid Contest and many are expected to begin preparation for the competition this year. The first contests were held in 1925 and the fete has become an outstanding event at each show.

"Each year has shown an increasing interest in the contest," said Mr. Lockwood, "based on the yearly improvement in the contest itself, the constantly increasing activity in first aid work, and the growing recognition of the true value of first aid training to the industry.

"We approach this contest with more than 18,000 trained first aid men in the Mid-Continent territory and over 400 living examples of the effectiveness of the work—men who today would be in their graves were it not for the trained ability of their fellow workers.

"This is certainly ample compensation to all those companies and individuals who have labored so effectively to establish safety and first aid work as an integral part of the petroleum industry. The executive committee solicits the cooperation of the industry in making the contest this year superior to any held in the past."

The contest is sponsored by the exposition and the Petroleum Safety Council, assisted by the department of accident prevention of the American Petroleum Institute.

At a meeting of the executive committee recently the following subcommittees were appointed:

Executive committee: Representing the Petroleum Safety Council: G. O. Lockwood; H. W. Richards, Mine Safety Appliance Co., Tulsa; R. S. Huffman, Oklahoma Natural Gas Corp., Tulsa; A. A. Odell, Barnsdall Refineries, Tulsa. Representing the American Petroleum Institute: R. E. Donovan, Standard Oil Co. of California, San Francisco, Calif.; P. E. Keegan, Shell Petroleum Corp., Houston, Tex.; H. N. Blakeslee, American Petroleum Institute, Dallas, Tex. Representing the International Petroleum Exposition: W. B. Way, general manager, Tulsa; at large, J. J. Delahide, E. D. Bullard Co., Houston, Tex.

Committee on problems: H. N. Blakeslee.

Committee on judges: H. W. Richards and J. J. Delahide.

Committee on publicity: J. W. Savage. Mid-Continent Petroleum Corp., Tulsa; Berle Swift, Barnsdall Refineries, Tulsa; and Hadley Meyers, Sinclair Prairie Oil & Gas Co., Tulsa.

Committee on safety banquet: R. S. Huffman, chairman.

Committee on entertainment: Carl H. Martin, Phillips Petroleum Co., Bartlesville, Okla., chairman.

Committee on finance and awards: A. A. Odell, Barnsdall Refineries, Tulsa.

Committee on equipment and transportation: John Woodford, Oklahoma Natural Gas Corp., Tulsa.

The rules for the meet have been revised and mimeographed ready for distribution to all entries.

P. E. Keegan has been named director of the meet and all entries must be made on the official entry blank and mailed to either H. N. Blakeslee or R. S. Huffman.

The U. S. Bureau of Mines has been asked to co-operate in the matter of training teams and judging the contest.

## Weather Slows Up Motor Fuel Movement in East

(Continued from Page 23)

lieved that the company will advance its tank car prices until such time as conditions warrant higher tank wagon and service station prices.

In the meanwhile tank car prices at New York harbor continue to range from 5½ cents for the so-called third grade material to 6 cents for the best grade, with 5¾ cents in the going market for the middle octane material. These prices are for tank car and small barge shipments. As previously indicated the movement has been exceptionally slow over the past week.

With the peak business of the year, furnace oils were in heavy demand at prices which ranged from 4 cents for the No. 4 industrial grade to 5¼ to 5½ cents for the No. 1 grades, including range oils. The kerosene movement has also improved with the price range of 5¼ to 5½ cents continuing in effect.

The market for bunker fuels is generally considered strong although there has been a seasonal slump in the marine demand. The Bunker C is quoted at $1.20 per barrel and Diesel fuel at $1.95.

Wax prices are unchanged with some buyers expressing the opinion that more material will be available for delivery during April and May. The higher prices in effect over the past 90 days is said to have shut off some of the export demand.

## Mid-Continent Operations Guided by Federal Allotment

(Continued from Page 8)

at Wichita Falls, but which has been moved to Gladewater.

Refinery operations in the other area remain essentially the same as in January, there being no change in the status of operating and shut down plants except two Oklahoma City, Okla., plants which have been closed down temporarily in the mean time.

The detailed crude runs of each refinery in the Mid-Continent are shown in the accompanying tables.

**EAST TEXAS**

| Company and location— | Daily capacity | Aver. daily runs Feb. | Aver. daily runs Jan. |
|---|---|---|---|
| Arpana Refining Co., Arp | 4,000 | 3,500 | 3,500 |
| Arrow Refining & Producing Co., Overton | 3,500 | 3,400 | 3,100 |
| Beacon Oil & Refining Co., Henderson | 4,500 | 2,600 | 2,900 |
| Canyon Refining Co., Kilgore | 500 | 700 | 700 |
| Carnation Refining Corp., Gladewater | 600 | 650 | 575 |
| Century Refining Co., Friars Switch | 2,000 | 1,500 | 1,350 |
| Chief Refining Co., Gladewater | 1,500 | 1,000 | 775 |
| Danciger Refineries, Inc., Longview | 10,000 | (*) | (*) |
| Duckworth & Chandler Refining Co., Gladewater | 500 | 350 | 170 |
| East Texas Refining Co., Longview | 10,000 | 7,000 | 6,000 |
| Foshee Refining Co., Gladewater | 1,000 | 1,200 | (*) |
| Glacetex Refining Co., Gladewater | 500 | 900 | 500 |
| Gilliland Refining Co., Gladewater | 1,500 | 850 | 1,150 |
| Gilmer Refining Co., Gilmer | 500 | (*) | (*) |
| Godlin Refining Co., Gladewater | 500 | 150 | 50 |
| Goodson-Gentry Refining Co., Gladewater | 1,200 | 600 | 1,100 |
| Hawk Refining Co., Gladewater | 200 | (*) | (*) |
| Henderson Refining Co., Henderson | 12,000 | (*) | (*) |
| Hix-Keller Refining Co., Kilgore | 1,000 | 500 | 500 |
| Humble Oil & Refining Co., Chilton | 4,000 | (*) | (*) |
| Humble Oil & Refining Co., Neches | 5,000 | (*) | (*) |
| Johnson Refining Co., Kilgore | 1,000 | 700 | 500 |
| Johnsonville Refining Co., Omega | 200 | (*) | 75 |
| Kent Refining Co., Angus | 4,000 | (*) | (*) |
| Kent Refining Co., Minerva | 2,000 | (*) | 200 |
| Keystone Refining Co., Gladewater | 1,000 | 700 | 200 |
| Kilgore Refining Co., Kilgore | 3,000 | 1,800 | 1,600 |
| Lake Refining Co., Gladewater | 1,500 | 1,300 | 1,000 |
| Laperein Refining Co., Kilgore | 1,000 | 1,300 | 625 |
| Locke Refining Co., No. 1, Gladewater | 1,500 | 1,300 | 1,000 |
| Locke Refining Co., No. 2, Gladewater | 1,500 | 1,000 | 800 |
| Lotus Refining Co., Gladewater | 1,500 | 650 | 300 |
| Magnolia Petroleum Co., Corsicana | 5,000 | 3,000 | 2,700 |
| Master Petroleum Co., Waco | 1,000 | 400 | 300 |
| O. K. Refining Co., Kilgore | 1,000 | (*) | (*) |
| Oil Refineries, Inc., Overton | 4,000 | 3,000 | 3,000 |
| Oriental Oil Co., Dallas | 5,000 | 1,200 | 1,000 |
| Overton Refining Co., Overton | 3,500 | 2,300 | 2,200 |
| Owl Refining Co., Kilgore | 1,800 | 200 | 1,800 |
| Owl Refining Co., Arp | 1,000 | (*) | 1,000 |
| Panama Refining Co., Kilgore | 1,000 | (*) | 1,000 |
| Pennant Refining Co., Kilgore | 1,000 | 600 | 525 |
| Phoenix Refining Co., Inc., Dallas | 1,000 | 500 | 500 |
| Pine Refining Co., Camps Switch | 2,500 | 450 | (*) |
| Recla Refining Co., Turnerstown | 200 | (*) | (*) |
| Rusk Oil & Refining Co., Overton | 3,000 | 1,000 | 1,700 |
| Sandy Refining Co., Big Sandy | 1,000 | 700 | 400 |
| Simms Oil Co., West Dallas | 4,000 | (*) | 3,000 |
| Sinclair Refining Co., Camps Switch | 5,000 | 1,500 | 1,600 |
| Solar Refining Co., Overton | 3,000 | 2,000 | 900 |
| Southern Refining Co., Reeds Switch | 2,500 | (*) | (*) |
| Southport Refining Co., Kilgore | 1,500 | 1,900 | 1,700 |
| Supreme Refining Co., Gladewater | 1,000 | 900 | 750 |
| Taylor Refining Co., Tyler | 15,000 | 2,700 | (*) |
| Texas Co., Dallas | 16,000 | 9,000 | 9,600 |
| Texas Oil Products Co., Gladewater | 2,000 | 800 | 700 |
| Texas Refining Co., Kilgore | 1,000 | (*) | (*) |
| Trico Refining Co., Turnerstown | 200 | (*) | (*) |
| Trinity Refining Co., Gladewater | 1,500 | 1,400 | 575 |
| Trio Refining Co., Arp | 1,000 | 900 | 550 |
| Tyler Refining Co., Arp | 1,500 | 1,200 | 1,300 |
| Union Refining Co., Camps Switch | 3,000 | 1,400 | 1,500 |
| Unit Refining Co., Kilgore | 200 | (*) | (*) |
| Upshur Refining Co., Gladewater | 500 | 650 | 600 |
| Wichita Refining Co., Gladewater | 500 | (*) | (*) |
| Total | 178,600 | 71,350 | 67,570 |

*Shut down.

**NORTH CENTRAL TEXAS**

| Company and location— | Daily capacity | Aver. daily runs Feb. | Aver. daily runs Jan. |
|---|---|---|---|
| All State Refining Co., Thrall | 2,300 | 780 | 1,100 |
| Archer Refining Co., Megargel | 1,500 | 300 | 400 |
| Atlantic, Pacific & Gulf Refining Co., Wichita Falls | 5,000 | 500 | 500 |
| Continental Oil Co., Wichita Falls | 6,000 | 4,000 | 4,500 |
| Empire Oil & Refining Co., Gainesville | 5,000 | 2,150 | 2,600 |
| Exchange Petroleum Corp., Albany | 500 | 200 | 225 |
| Falls Refining Co., Wichita Falls | 2,000 | 200 | 200 |
| Gratex Refining Co., Graham | 500 | 150 | 150 |
| Gulf Refining Co., Fort Worth | 10,000 | 5,000 | 5,000 |
| Gulf Refining Co., Sweetwater | 5,000 | 5,000 | 4,000 |
| Haskell Oil Refining Corp., Breckenridge | 200 | 100 | 100 |
| Jacksboro Refining Co., Jacksboro | 50 | 10 | 10 |
| LaSalle Petroleum Co., Burkburnett | 3,500 | 300 | 400 |
| Magnolia Petroleum Co., Fort Worth, No. 1 | 12,000 | 4,600 | 4,800 |
| Magnolia Petroleum Co., Fort Worth, No. 2 | 6,000 | (*) | (*) |
| Marathon Oil Co., Fort Worth | 5,000 | 4,000 | 3,900 |
| Moutray Refining Co., Hawley | 600 | 285 | 275 |
| Muenster Refining Co., Muenster | 300 | 100 | 110 |
| Nolting Refining Co., Sweetwater | 1,000 | 325 | 350 |
| Octane Oil Refining Co., Baird | 1,400 | 1,100 | 1,175 |
| Olney Oil & Refining Co., Olney | 3,000 | 1,800 | 1,600 |
| Omega Refining Co., Brownwood | 200 | 100 | 110 |
| Panhandle Refining Co., Wichita Falls | 5,000 | 2,500 | 2,200 |
| Paragon Refining Co., Leuders | 300 | 200 | 200 |
| Pentex Refining Co., Echo | 400 | (*) | (*) |
| Pilot Point Refining Co., Pilot Point | 500 | 100 | 100 |
| Sinclair Refining Co., Fort Worth | 5,000 | 1,800 | 1,800 |
| Southtex Refining Co., Trent | 250 | 225 | 225 |
| Southland Refining Co., Olney | 1,000 | (*) | (*) |
| Star Refining & Producing Co., Fort Worth | 1,000 | 500 | 500 |
| Starlight Refining Co., Inc., Hatchel | 300 | 175 | 175 |
| Superior Refining Co., Tiffin | 800 | 150 | 150 |
| Taylor Refining Co., Taylor | 6,000 | 550 | 525 |
| Taxman Refining Co., Wichita Falls | 3,000 | (*) | (*) |
| Texas Pacific Coal & Oil Co., Fort Worth | 3,000 | 2,000 | 2,000 |
| Texas Pacific Coal & Oil Co., Caddo | 1,000 | 300 | 300 |
| Tucker Refining Co., Wichita Falls | 200 | 150 | 130 |
| Waggoner Refining Co., Electra | 6,000 | 2,700 | 2,600 |
| White Star Refining Co., Cisco | 500 | 150 | 150 |
| Total | 105,300 | 42,500 | 42,560 |

*Shut down.

**ARKANSAS**

| Company and location— | Daily capacity | Aver. daily runs Feb. | Aver. daily runs Jan. |
|---|---|---|---|
| Berry Asphalt Co., Waterloo | 2,000 | 500 | 500 |
| Henry H. Cross Co., Smackover | 6,000 | 3,000 | 3,000 |
| Lion Oil Refining Co., El Dorado | 12,000 | 6,000 | 6,000 |
| Macmillan Petroleum Products Co., Norphlet | 2,300 | 1,900 | 1,900 |
| Ouachita Valley Refining Co., El Dorado | 1,500 | 1,200 | 1,200 |
| Root Refining Co., El Dorado | 10,000 | 5,200 | 5,200 |
| Simms Oil Co., Smackover | 3,000 | 2,000 | 2,000 |
| Stephens Refining Co., Stephens | 750 | 300 | 300 |
| Total | 37,550 | 20,100 | 20,100 |

**SOUTHWEST TEXAS**

| Company and location— | Daily capacity | Aver. daily runs Feb. | Aver. daily runs Jan. |
|---|---|---|---|
| Bee Oil & Refining Co., Pettus | 1,000 | 125 | 200 |
| Capital Refining Co., Luling | 2,500 | (*) | (*) |
| Chapa Refining Co., Laredo | 100 | 65 | 65 |
| Grayburg Oil Co., San Antonio | 6,000 | (*) | (*) |
| Humble Oil & Refining Co., San Antonio | 5,000 | 2,300 | 2,500 |
| Magnolia Petroleum Co., Luling | 7,000 | 5,000 | 3,800 |
| Misko Refineries, Inc., Mirando City | 2,500 | 800 | 600 |
| Phoenix Refining Co., Pettus | 1,000 | 600 | 800 |
| Phoenix Refining Co., San Antonio | 500 | 200 | 500 |
| Pioneer Oil & Refining Co., Somerset | 1,500 | 900 | 800 |
| Price Refining Co., San Antonio | 500 | 300 | 290 |
| Texas Co., San Antonio | 3,000 | 3,000 | 3,000 |
| Texas Petroleum Products Co., Somerset | 1,500 | 300 | (*) |
| Total | 32,100 | 13,590 | 12,555 |

*Shut down.

**NORTH LOUISIANA**

| Company and location— | Daily capacity | Aver. daily runs Feb. | Aver. daily runs Jan. |
|---|---|---|---|
| Bayou State Refining Co., Hosston | 750 | (*) | (*) |
| Cedar Grove Refining Co., Shreveport | 1,000 | 900 | 900 |
| Louisiana Oil Refining Co., Shreveport, Bossier | 19,000 | 17,000 | 16,000 |
| Spartan Refining Co., Shreveport | 10,000 | 9,000 | 9,000 |
| Stanolind Oil & Gas Co., Superior | 3,500 | 2,000 | 2,000 |
| Texas Co., Shreveport | 7,000 | (*) | (*) |
| Shreveport Refining Co., Shreveport | 500 | (*) | (*) |
| Total | 41,750 | 28,900 | 27,900 |

*Shut down.

## Government Report Shows Domestic Demand Increase

(Continued from Page 12)

oil or refinery products. The activities in refinery construction in France, Italy and Germany over the past two years are representative of this condition. To provide outlets for foreign crude oil supplies the half dozen major oil companies outside of Russia, are making whatever changes necessary in their operations to supply crude oil from fields outside the United States.

It is pointed out in this connection that the advances made in crude oil and refinery product prices the last six months of 1933 has also tended to give impetus to this trend of expanding crude oil production and refinery output in foreign countries. Some observers believe this condition will ultimately become so important that all the major producing countries will have to join the United States if any program to stabilize the industry's markets at higher price levels is finally successful.

### Comparison With Peak Demand

The accompanying table was prepared from government reports in order to give the reader an easily understood comparison between 1933 and 1932 oil operations. In the following paragraphs the 1933 data on domestic demand and exports are compared with the peak yearly periods.

### Total All Oils

The best gauge available for comparison covering present demand with that of the peak period is based on the government data applying to "Total all oils" which includes crude oil, refinery products and benzol. The peak demand in United States for all oils was in 1929 when it totaled 1,103,203,000 bbls.

The 1933 demand of 971,972,000 bbls. was 88.1 per cent of this peak figure. Thus the oil business despite its losses in export markets now has almost 90 per cent of its peak business, a situation which is not duplicated by any other major industry.

The peak figure in stocks of all oils was on March 31, 1931, when they totaled 700,681,000 bbls. The December 31, 1933, figure was 601,453,000 bbls., a decline of 99,228,000 bbls. despite the increase in total storage which materialized during 1933. The peak storage of all oils on December 31 was at the close of 1929 when it totaled 689,166,000 bbls. Considering the new storage tanks that have been built since 1931, it is certain that the industry's empty storage facilities now total well over 100,000,000 bbls.

### Crude Runs to Stills

The peak crude oil runs to stills at refineries was in 1929 when they totaled 987,708,000 bbls. which means that the 861,254,000-bbl. total for 1929 was 87.2 per cent of the most active operating period in the history of the industry.

Imports of crude oil have declined from a peak of 130,255,000 bbls. in 1922 to 32,773,000 bbls. in 1933, a decline of approximately 75 per cent. Due in part to the low prices prevailing over a greater part of 1933 exports of crude oil increased in 1933 over 1932 and were the highest in the history of the industry.

### Motor Fuels

The largest demand (domestic consumption plus exports) for motor fuel in this country was in 1929 when the total was 463,166,000 bbls. The 1933 demand was 88 per cent of this peak. The peak domestic demand for motor fuel in the United States was in 1930 and totaled 378,143,000 bbls. The 1933 figure which represented a 1.1 per cent increase over 1932 was 92.6 per cent of this all-time peak. Thus the oil industry, despite the depression, still has better than 90 per cent of its boom domestic market.

The record in export markets which fortunately is not a major factor in total demand is not so favorable. The peak export shipments of motor fuels was in 1929 and totaled 65,575,000 bbls. and the 29,186,000 bbls. total for 1933 represents a decrease of 55 per cent. There has been a steady yearly decline in gasoline exports since the boom year of 1929.

### Kerosene

As shown in the accompanying table, there was an increase of 15.7 per cent in the domestic demand for kerosene in 1933 and although exports again declined the total demand was 7 per cent greater than in 1932, indicating that this product still has strong position in the consuming markets of the oil industry. The largest demand for kerosene in this country since the World War was in 1925 when the domestic consumption and exports totaled 61,181,000 bbls. The 1933 figure was 77.4 per cent of this figure and the largest since 1930. The largest exports were in 1919 when they totaled 23,536,000 bbls. and totaled 22,034,000 bbls. as late as 1928. The 1933 figure of 8,960,000 bbls. was 38 per cent of this total. The 1933 domestic demand was 96.1 per cent of the 1925 peak of 38,440,000 bbls.

### Fuel Oil and Gas Oil

In 1929 the demand for fuel oil and gas oil totaled 459,644,000 bbls. of which 39,151,000 bbls. was accounted for by exports. Based on available records, this was the peak demand for these heavy oils. The 1933 total of 341,764,000 bbls. which represented a 4.1 per cent increase over 1932 was 74.3 per cent of this peak.

The 1933 domestic demand was 76.4 per cent of the 1929 peak of 420,493,000 bbls. The exports for 1933 were 43 per cent of the 47,391,000 peak in 1927.

### Lubricating Oils

The largest demand for lubricating oils from refineries in United States was in 1929 and totaled 34,469,000 bbls. and the 1933 demand was 69.5 per cent of this peak. The 1933 exports were 62.5 per cent of the peak exports of 1928 which totaled 62.3 per cent. The 1933 domestic figure was 72.3 per cent of the peak in 1929.

# Texas Railroad Commission Hearing on Field Allowables in West Texas

FORT WORTH, Tex., Feb. 12.—The Railroad Commission hearing Saturday was filled with pleas by producers and refiners for more production from various pools in the Permian Basin, West Texas. R. D. Parker, chief supervisor, who presided, injected the question a couple of times as to how the local refiners could get relief, and if they should not be given more oil to meet their requirements.

The Cosden Oil Co., which has a plant at Big Spring that could handle 12,000 bbls. of crude per day, but which has had to operate on around 3,700 bbls. per day, although it previously asked for 6,500 bbls. per day, asked that the Howard-Glasscock County Pools be raised to 25,000 bbls. per day in order that the company could obtain sufficient oil for its needs, continue to operate and be able to keep its payroll intact. This plant has been modernized and is operating on 640 bbls. of its own oil from the Penn Pool, Ector County, and what oil it can obtain from the area near Big Spring. The demand of the plant is now 8,000 bbls. per day.

L. H. Prichard, of the Col-Tex Refining Co., Colorado, Tex., also asked for an increase in the allowable from the Iatan Pool in east Howard and also an increase from the Chalk Pool, Howard County, stating his company needed an additional 400 bbls. per day from the former pool and 1,100 bbls. per day more from the latter pool. It is now getting 900 bbls. per day from the Westbrook Pool, Mitchell County, 900 bbls. from the Iatan Pool and 3,700 bbls. per day from the Chalk Pool. He stated his company had four-year contracts which necessitated more oil, and that the growing demand for its refined products, most of which are sold in agricultural states to the North, also made it necessary that the plant obtain more oil, the company having no oil or gasoline stocks to meet the demand. The refinery capacity is 10,000 bbls. per day and contracts, he said, call for 7,000 bbls. of crude per day. He also stated the plant was behind on its fuel oil contracts with the Texas & Pacific Railroad.

### Effect on Other Areas

R. E. Hardwicke, oil attorney of Fort Worth, questioned the refining company men, asking if their demands were fulfilled would not the meeting of these demands necessitate a reduction in production or cutting of refined products sales in some other area. Mr. Prichard replied that it would not in his company's case as existing contracts and a growing demand from old customers only made it necessary that the plant get more oil, and that the refined products from his plant were not sold on the open market.

J. E. Bristow, representing the Howard County Refining Co., at Big Spring, also asked for a greater allowable from Howard-Glasscock County so his plant could obtain a greater supply of crude and could continue to operate. The plant has a capacity of 2,000 bbls. per day but only 200 bbls. can be obtained for daily operations now. He said his company had previously asked the Planning and Coordination Committee for aid in obtaining more crude from the area but that the company was referred back to the Railroad Commission.

C. W. Tomlinson, chief geologist of the Schermerhorn Oil Co., stated that the Howard-Glasscock area was fifth in capacity and reserves in the State, the potential now being 47 per cent greater than in October, 1930, but that during the latter part of 1933 the allowable had been cut 33 per cent, and at a time when lifting costs had increased 28 per cent under the oil code. The per well allowable, he said, is one-third less than that of East Texas wells, and doubling the output of the area would not put any oil in storage, would not create any waste, and all the increased allowable would be absorbed by local refineries.

### Say East Texas Favored

Figures were cited by other operators to show how older producing areas in the Permian Basin were discriminated against in favor of East Texas and Coastal fields, and that the older areas had always abided by proration and had scaled down their production to fit the national picture, but that they now needed relief, and that West Texas should be given advantage of the spring demand until an equitable adjustment is made on all fields in the State. The Howard-Glasscock area now has a daily allowable of 13,300 bbls.

Other areas in the district in which increased allowables were asked were: The Taylor Link Pool, Toborg-Tippett Pool and Pecos Valley Pool, all in Pecos County; the Addis Pool, Ector County; O'Brien Pool in Ward County, and the Scarborough Pool in northern Winkler County. Independent producers and royalty owners bid for more production from the latter two areas. An attorney for the Gulf Production Co. said his company had a fair demand for at least 10,000 bbls. more per day from the O'Brien area.

E. A. Landreth, president of the Landreth Production Co., asked for removal of proration in the Taylor Link Pool, Pecos County. Statistics he read showed that of the 660 bbls. daily allowable, 442 bbls. was marginal and that many of the 57 producing wells would have to be abandoned because of water troubles unless the field was increased to around 1,000 bbls. per day. He stated it had a daily potential of 1,970 bbls., but that the field was practically depleted. There are only six or seven wells in the field not making water and 75 per cent are making from 60 to 98 per cent water. "It has been producing since 1930 and was first put under proration on September 15, 1933. The water is on the increase because of cutting back production, and will soon drown out the wells unless more production is allowed the field," he stated.

L. B. Lancaster, producer in the Pecos Valley Pool, Pecos County, stated that about 50 families depended on the production from this small sand field which is now allowed only 256 bbls. per day, that the potential is less than 500 bbls. per day and if the field could be produced at its maximum a pipe line company will put a line into the field and take the daily maximum, thus giving relief to the small operators and those depending on them. There is no pipe line connection to the field now, and the only outlet is a couple of small refineries. He also asked that other operators in the pool be not allowed to drill any more wells 150 feet from the property lines as a couple had done.

Claude E. Aikman, representing the Cardinal Oil Co., of San Angelo, asked for lifting of proration in that shallow sand pool which is just north of the Yates Pool, Pecos County. He stated the field had a daily potential of 1,050 bbls. from 78 wells, but that the leases in the south end, making water, were exempt from proration. He declared raising proration would increase the allowable only by 40 or 50 bbls. and as it was necessary to pump off the wells each day to get sufficient gas to light and heat the camp, that lifting proration would mean a great deal to operators in that pool.

### Mr. Landreth Offers Plan

Mr. Landreth, who is interested in 10 per cent of the production in the Penn Pool, read statistics that this pool had been cut from 7,500 bbls. on April 3, 1933, to 5,250 bbls. which it is allowed now, and that although a 7,500-bbl. allowable showed to be the best allowable from a gas-oil ratio standpoint, he felt the pool should not be given an increase until conditions justified. The field, he said, was producing less than 25 bbls. of water per day and had been prorated since its inception. There are 81 wells, 51 units, with a potential of 25,000 bbls. daily in the field.

The Cosden Oil Co. also entered the Penn Pool discussion as it takes 640 bbls. of its own production from this pool but needs an increase in its wells to meet the requirements of its Big Spring refinery. The Magnolia Pipe Line Co. runs oil from the pool to this plant for the Cosden company.

Mr. Landreth argued that no field should be allowed more than a fair share and that the National Recovery plans should be taken into consideration in prorating a field. He said if a refinery needed more oil the company should buy more properties or get the oil by some other method than asking for an increase in the allowable from its wells in some field.

Mr. Cowden offered a new plan for prorating the North Cowden area in Ector County, in which his company owns leases and royalties and has producing wells. He said the present proration method in this area was improper. The area has a daily allowable of 880 bbls. from eight wells; there are six now drilling and 50, he said, are to be drilled this year. He advised using 40-acre units in his proration plan which was given the commission to take under advisement, and which will probably be adopted. An engineer for a major oil company owning production in the area, asked if bottom hole pressures should not be taken into consideration. Mr. Landreth thought it better not to adopt that at present but at a later date when more wells are completed.

### Most Severely Prorated

L. C. Harrison, part owner of the discovery well and holder of leases and royalties in the Addis area, Ector County, asked for an increase in the allowable in that pool which now has eight producers with a daily potential of 1,266 bbls., with an allowable of only 406 bbls., and said to be the most severely prorated field in the state, the allowable now standing at 1.1 bbls. per acre. He said the high pressure in the wells, and the limitations on production were hurting his wells which cost more than $30,000 to drill. An engineer representing Fred Turner, Jr., another operator in this pool, said the gas was above the oil in this area.

The Landreth plan for prorating the North Cowden area may be accepted by the operators in the Addis area, to the south.

The old argument between operators in the Church-Fields Pool and Gulf-McElroy Pool flared up again at the hearing, an attorney for one of the companies operating in the Church Fields area asking that the complaint be reread into the record. Operators in that pool asked that the two areas, which from an engineering standpoint are the same, but from a legal standpoint are said to be different, be prorated on the same basis. There are 321 wells in the Church-Fields area and 27 in the McElroy area. This controversy was heard before commission members on January 8 at Fort Worth, the commission not changing the method after that hearing.

## TEST ILLINOIS TAX LAW

CHICAGO, Feb. 8.—A suit declaring the Illinois gasoline tax unconstitutional and asking that the state department of finance be restrained from molesting its business was filed today in Federal Court on behalf of the Blue Rose Oil Co. of Chicago.

Charles D. Duncan, president of the company, alleged unconstitutionality of the law on the grounds that automobiles must pay the same tax as motor trucks and buses and that motorists can purchase gasoline in other states and still use Illinois highways.

## Tank Car Gasoline Market in Chicago Is Steadier

(Continued from Page 31)

all along in the Chicago district at low figures, but many points are hard to reach and are unable to purchase favorably.

### Naphtha Market Healthy

Naphtha and solvent prices are unchanged to a shade firmer on some items. The demand is nothing to cause excitement, but it is sufficient to create a fair amount of business and the tone is healthy.

Petroleum coke shows little change. Prices reflect the underlying nature of the market, which is being favored by a good demand.

### Wax Strong

Continuing heavy drain on wax, as reflected by figures on stocks, is still strengthening this product marketwise, and higher prices probably will result if the present trend continues.

Both compounders and jobbers continue to buy lubricating oils actively, and the eastern market on the basis of quotations here is extremely strong. The Mid-Continent and coastal oils are being quoted firm to higher.

## LLOYDMINSTER FRANCHISE

LLOYDMINSTER, Saskatchewan, Feb. 10.—The Lloydminster Gas Co., which recently encountered a fair commercial gas flow about a mile from this town, is negotiating for a franchise to supply gas to the community. In addition to the mile of transmission line, a distributing system to supply a population of approximately 2,000 is involved in the project. The company is financed by local capital.

## ROCKY MOUNTAIN FIELDS

Estimated daily average production for the week ending February 10 follows:

| | (Bbls.) |
|---|---|
| **WYOMING** | |
| Salt Creek | 18,500 |
| Big Muddy | 1,650 |
| Badger Basin | 40 |
| Byron-Garland | 570 |
| Byron-East | 280 |
| Dallas Derby | 310 |
| Dutton Creek | 100 |
| Elk Basin | 580 |
| Ferris | 20 |
| Frannie | 1,080 |
| Grass Creek | 870 |
| Greybull | 10 |
| Hamilton Dome | 530 |
| Hudson | 210 |
| LaBarge | 1,040 |
| Lance Creek | 200 |
| Lost Soldier | 1,470 |
| Mule Creek | shut in |
| Midway | 70 |
| Notches | shut in |
| Oregon Basin | shut in |
| Osage | 840 |
| Pilot Butte | 30 |
| Rex Lake | shut in |
| Rock River | 1,500 |
| South Casper | shut in |
| Poison Spider | 100 |
| Teapot | 20 |
| Total Wyoming | 30,020 |
| **MONTANA** | |
| Buckley Border | 180 |
| Cat Creek | 670 |
| Cut Bank | 1,210 |
| Dry Creek | 30 |
| Kevin-Sunburst | 2,390 |
| Lake Basin | 50 |
| Pondera | 760 |
| Total Montana | 5,290 |
| **COLORADO** | |
| Florence | 350 |
| Fort Collins and Wellington | 560 |
| Iles Dome | 920 |
| Moffat | 600 |
| Orchard | 130 |
| Rangely | 90 |
| Tow Creek | 180 |
| Total Colorado | 2,830 |
| **NEW MEXICO** | |
| Artesia | 580 |
| Cooper area | 110 |
| Empire area | 0 |
| Eunice area | 1,080 |
| Getty Pool | 0 |
| Hobbs | 33,540 |
| Hogback | 210 |
| Hospah | shut in |
| Jal | 1,530 |
| Lea area | 1,880 |
| Jackson | 1,050 |
| Maljamar | 140 |
| Rattlesnake | 790 |
| Table Mesa | 90 |
| Total New Mexico | 41,000 |
| Total all fields | 79,140 |
| Total previous week | 79,080 |
| Difference | 60 |

## Oil Code Rules Revised on Station Equipment

(Continued from Page 30)

ment manufacturers and/or their agents, jobbers or wholesalers when they sell such equipment directly to consumers or ultimate users. If there be no published price schedules, the net selling price of such equipment shall be not less than seller's cost, plus transportation charges to destination, plus reasonable handling charge. The maximum credit terms shall be net 30 days.

C. Any sales of used or second-hand equipment, not installed, by any refiner, distributor, jobber, wholesaler, or retailer of petroleum products must comply with the following rules:

1. Used or second-hand equipment not installed, of the kind and types specifically mentioned in Appendix "A," may be sold to any person selling petroleum products for resale or to a consumer of petroleum products provided seller does not now supply or contemplate supplying petroleum products to such persons, but in no event to a manufacturer of, or dealer in, said equipment.

2. Sales of used or second-hand equipment of a kind and type not specifically mentioned in Appendix "A" may be made to the persons and in the manner set forth in Clause C, Paragraph 1 above and must be made at the current price or fair market value of such equipment.

3. Sales of second-hand or used equipment, not installed, of the kind and type specifically mentioned in Appendix "A" shall be for cash or net tenth proximo at the original invoice price, less depreciation at the rate of 15 per cent per annum, except where other rates of depreciation are specifically set forth in Appendix "A" hereof, but in no event at a price lower than that fixed in Appendix "A." Where the sale is made at the invoice price, less depreciation, and where a fixed price is not shown in Appendix "A," then the sale price shall be not less than an amount equal to one year's depreciation.

4. Used or second-hand equipment, not installed, of the kind and type specifically mentioned in Appendix "A" shall not be sold for junk or otherwise scrapped unless said equipment is first rendered permanently useless for service, not only as to the whole, but as to each of its component parts.

## Secretary Ickes Approves Interpretations of Rules

(Continued from Page 28)

and will come within the provisions of Article 5, Rule 7, 8 and 9.

The term "fair market value" is construed to mean either the "going value" of a similar second-hand package in that locality, or not less than the full cost in the case of new steel barrels and drums.

**Article 5, Rule 9**

1. The term "repairs" is interpreted to mean any repair or replacement of parts necessary to maintain the equipment, its attachments, and appurtenances in a safe and satisfactory workable condition, but in no case shall it mean changes in equipment such as the conversion of a hand or air operated piston type pump or visible-type pump into an electrical motor pump.

2. Repairs may be made to existing loaned and installed equipment owned by a refiner, distributor, jobber, or wholesaler if this can be done on the premises where the equipment is located, except as provided in the following paragraph.

3. The equipment must not be taken from dealer's or consumer's premises, in order to repair same, except (a) motor trucks owned by refiners, distributors, jobbers, or wholesalers, and regularly assigned at airports prior to August 19, 1933, for dispensing petroleum products; (b) underground tank or any part of the underground installation in connection therewith may be removed from the premises for repair in order to minimize fire hazards and comply with fire regulations.

# Panhandle Pumping Problems Solved by Specially Designed Central Powers

By L. G. E. BIGNELL
Petroleum Engineering Editor

Out in Gray and Carson Counties in the Panhandle of Texas the surface of the land usually seems level but on traveling over it dry washes or arroyos will be found to cut deep into the soil and make progress in a direct line from one point to another difficult. As the principle of a well designed and laid out central pumping power is to run the pull rod lines in as straight a line as possible between power and well, engineers have found many interesting problems to overcome in installing this type of equipment on leases in that area.

The Skelly Oil Co. has drilling rights on the great Schaffer ranch in that country and has developed its property in such a manner as to permit the pumping of the 3,150-foot wells by central powers. The interior of one of these buildings is shown in the accompanying picture. This is a wooden frame structure covered with corrugated sheet iron and painted inside with gray paint and outside with the Skelly Oil Co. colors.

*Interior view of one of the new pumping powers recently installed by Skelly Oil Company on Panhandle lease*

The band wheel is 24 feet in diameter and 30-inch face and is driven by a 100-horsepower twin-cylinder Superior gas engine and the power transmitted by a 24-inch 6-ply Happy Belting Co. endless belt. The drive belt between engine pulley and countershaft is also endless and provided with Happy Belting Co. belt tightener. Two air cylinders for starting the large engine will be noted in the roof trusses.

The Skelly Oil Co. has three units of this kind designed to pump as many as 18 wells and all supplied and installed by the National Supply Co., Fort Worth, Tex., office. This power is of the band wheel type and furnished with latest type forced feed lubrication. The National Supply Co. floating type idler is used on the 24-inch belt. The machinery is all mounted upon heavy concrete foundations and the building floored with cement.

Outside the building is surrounded with guards to keep cattle out of the enclosure. Grass has been planted around the building, watered by automatic sprinkling system, and kept green most of the year, and this is one of the prime reasons for erecting the fence to keep the cows out.

The building and grounds are electric lighted and the current supplied by a near-by gasoline plant and carried into the power house in wires in buried conduits. This eliminates poles in the immediate vicinity of the plant and gives clear space for all pumping lines radiating from the power.

The rod lines are placed in enclosed self-aligning and self-oiling boxes and the bearing boxes mounted upon steel posts buried in concrete. These lines, some of which are 3,300 feet long, were all laid out by surveyors and do not follow the natural contour of the ground but form true catenary curves. This may be illustrated by holding each end of a piece of string in the fingers and permitting the central portion to assume its natural position. This natural curve is known as a catenary and by designing the rod lines so that they assume approximately this path it is found that strains and stresses within the rods is reduced to a minimum.

To accomplish this, surveyors first laid out straight lines from power to well. Then they ran grade levels and later the rod line path was made by cut and fill of the surface. If there was a small knoll in the path of the rod line it was cut through, and if there was a small hollow it was filled. But when the posts were set and bearings placed the rod line assumed approximately the natural curve that it would have taken had it been swung freely from supports at well and power only.

At the well, heavy duty jacks are used and they are equipped with grit-proof bearings and greases by Alemite system. The oil used is held in a small reservoir and only renewed at long intervals. All details have been carefully worked out at the well and with this balanced system pumping costs are being held to a minimum. All these precautions with grit-proof bearings is due to the sandy soil conditions and high winds which frequently fill the air with dust.

### FRANK W. KENNEDY DEAD

Frank W. Kennedy, vice president and general manager of the DeLaval Steam Turbine Co., Trenton, N. J., died in his home in Yardley, Pa., January 24. Mr. Kennedy was born in Pittsburgh, Pa., in 1876, and attended the Shadyside Academy of that city. He graduated from Princeton University with the degree of civil engineer in 1898, and thereafter occupied positions successively with the Pennsylvania Railroad in Altoona, the U. S. Steel Corp. at one of the Ohio subsidiaries, and the Dravo-Doyle Co., Pittsburgh. In 1908 he became general manager of the De Laval Steam Turbine Co., and in 1916 was elected vice president.

## Board Awards Leases in Crane and Andrews

AUSTIN, Tex., Feb. 12.—The university board of mineral development Saturday awarded oil leases on 22 sections of land in Crane and Andrews Counties for a net bonus of $118,150.40 cash, in addition to the 50 cents per acre and one-eighth royalty of oil and gas produced on the lands.

The California Co. paid a high figure of $10,944 on Section 4, Block 30, Crane County. Next highest was $9,696, paid by the Humble Oil & Refining Co. for Section 6, Block 4, Andrews County; and $9,049 by the same company for Section 7 in the same block. Bonuses ranged down to $1,632 for some sections. Magnolia Petroleum Co. acquired leases on Sections 16, 3 and 15, Block 30, Crane County. The California Co. leased only Section 4, Block 30, Crane County. Humble company leases included: Sections 20, 19, 18, 17, 8, 7, 6, 5, 41, 32, 31, 29, 30 and 42, in Block 4, Andrews County; Sections 5, 8, 7 and 6, Block 3, Andrews County.

The board called bids for February 24 on approximately 50 sections in Crane and Andrews Counties. Minimum bids of 50 cents per acre, plus one-eighth of the oil and gas, were required, the leases to go to bidders offering the highest bonus in addition to these amounts.

### CHECK TEXAS SHIPMENTS

The state comptroller's department has consolidated the East Texas and Dallas motor fuel districts and has transferred 20 men to Dallas to check the records of gasoline purchases and sales of all retail dealers in that city, and to test the gasoline being sold at the many stations. E. G. LeMay, state chemist, and his assistants are in charge of the latter work, while Barrett Thomas will be in charge of the local office of the comptroller's department. Over 700 samples of gasoline have been taken from stations throughout the city for testing. Complaints will be filed where the samples no not meet the requirements of the state law.

The inspection and testing service is carried on throughout the State to detect and combat tax evasion through blending of nontaxable commodities with gasoline on which the tax is paid, and to protect the consuming public from the sale and use of inferior motor fuel, unless it is offered for sale as such and truly represented to the public for what it is.

Sam Kimberlin is in charge of the comptroller's district office at Longview, and since the advent of a group of his men into the East Texas Field, gasoline tax payments have steadily increased, more than doubling the first month they began checking gasoline sales at refineries in the field.

The State now collects over $30,000,000 per year in gasoline tax. One-fourth goes to public schools, one-fourth to retirement of local county bonds, and the other half to construction and maintenance of state highways.

### CANADIAN PETROLEUM IMPORTS

OTTAWA, Ontario, Feb. 10.—Official figures just issued show that imports of petroleum, asphalt and their products into Canada in December had a value of $2,797,862 as against the November valuation of $3,759,152. The December importations were obtained from the following sources: United States, 79.18 per cent; Peru, 15.5; Colombia, 4.56; and the remainder scattered.

Imports of crude petroleum into Canada in December amounted to 64,969,634 gallons, the sources being as follows: United States, 49,672,115; Peru, 11,277,577; Colombia, 4,019,942.

Exports of petroleum and petroleum products in December were valued at $82,670, compared with a valuation in November of $478,984.

# Good Ward County Well, and Successful Acid Treatments in Other West Texas Counties

By L. E. BREDBERG
Fort Worth Bureau, The Oil and Gas Journal

FORT WORTH, Tex., Feb. 12.—The completion of Gulf Production Co.'s No. 40 O'Brien in the O'Brien area in Ward County for a 1,650-bbl. well per day and the continued success of acid treatment in other pools in this district were the only important developments for the West Texas district during the week.

Broken pay was topped in Gulf Production Co.'s No. 40 O'Brien at 2,610 feet, and increases in oil and gas were had at 2,710-25 feet and 2,739-56 feet where the well flowed 1,650 bbls. the first 24 hours and 1,248 bbls. the third day. Total depth is 2,757 feet. This is the highest initial yield of any well completed in Ward County in several months. The test is located in Section 17, Block F, G.&M.B.&A. Survey. Two more completions and five locations were made in this county this week.

In Glasscock County the Humble Oil & Refining Co.'s No. 2 Nat Washer, located in Section 20, Block 33, Township 2s, T.&P.R.R. Survey, was treated with 1,000 gallons of acid with a 100-bbl. oil load and was completed for an initial production of 528 bbls. in 24 hours on a proration test. Before acid treatment the well had only 1,300 feet of oil in the hole from pay topped at 2,122-33 feet and bottomed at 2,133 feet. The completion of this test marks a slight extension to the field and proves the worth of acid treating in the area.

The A. & M. Petroleum Co. treated No. 1 University in the Taylor Link Pool in Pecos County with acid, and the well started flowing at the rate of 50 bbls. of oil per hour. Before treating the well was pumping 40 bbls. of oil per day.

Broderick & Calvert's No. 1-K Cowden, located in the C NE NW Section 16, Block 43, Township 2s, T.&P. Survey, Ector County, had a showing of oil from 4,045-56 feet and is drilling below 4,100 feet in lime. Based on the lower white lime section reported to have been topped at 3,982 feet, the well is correlated as being 10 feet higher on the structure than Stanolind Oil & Gas Co.'s No. 2 E. F. Cowden, a producer located about 2½ miles southeast from the above well. The outcome of this important wildcat should be known by the latter part of this week.

Frank Gilpin and others' No. 1 Blakeney in the same county located in Section 32, Block 43, Township 1n, T.&P. R.R. Survey, continued to plug back from 4,405 feet where it will be shot and then treated with acid. A small well is expected. Humble Oil & Refining Co.'s No. 1 Thomas Martin in Section 28, Block 43, Township 2s, T.&P.R.R. Survey, swabbed 45 bbls. in 24 hours and then swabbed dry. It has been treated with 1,000 gallons of acid, but no test has been made. This is the most southerly test in the Addis Pool. In the same county Fred Turner, Jr. has made location for his No. 1-C F. V. Addis to be located in Section 35, Block 43, Township 2s, T.&P. Survey. This was the only location made for the county this week.

### Ordovician Tests

The three wildcat Ordovician tests being drilled in the district and located in Pecos, Upton and Terrell Counties are still drilling ahead, Humble Oil & Refining Co.'s No. 1 White Baker located 9 miles west of the Yates Field in Pecos County, is drilling below 7,825 feet. Gulf Production Co.'s No. 103 McElroy has progressed below 8,947 feet in shale and chert. Sides and others in No. 1 Phillips are cleaning out 300 feet of cavings to fish for drill bit which was lost at 5,605 feet. This test has encountered several good showings of gas.

In Crane County, the Continental Oil Co. has completed its No. 2-C Cowden for an initial production of 371 bbls. in 24 hours pumping. This is another test that was successful in being treated with acid. Pay was topped at 2,330 feet, and before acid was run and following a 200-quart shot from 2,330-2,495 feet, the well pumped only 40 bbls. of oil. It is located in Section 81, Block X, C.C.S.D. R.G.&N.G. Survey.

### PANHANDLE DISTRICT

Three locations were staked in this district during the past week with seven completions reported, one of which was an old well drilled deeper. Two were gas wells adding 128,000,000 feet of gas production to the district, and the remainder were oil producers having a total initial production of 2,531 bbls. to the district. The daily potential of the field, before these new completions were registered, was 165,574 bbls. of which 26,435 bbls. consisted of marginal production and 2,254 bbls. special exempt oil.

The semiwildcat well of R. R. Osborne and others on the Sloss & Admire ranch in Section 47, Block 13, approximately 7 miles east of Shamrock and 11 miles southeast of production, Wheeler County, is flowing naturally 50 bbls. per day from dolomite logged at 2,190-93 feet. No other locations have yet been staked in the area, but interest has been renewed by this new well which is a southwest diagonal offset to a small well completed in 1928 and another test drilled in 1931. There is no outlet to the area and the owners of the new well may erect a small skimming plant to process the light production from the wells.

Although the Panhandle district was granted an increase of 10,000 bbls. per day in production, stepping the daily allowable up to 52,000 bbls., this week's production report shows the field falling of 1,810 bbls. per day or down to 40,200 bbls. Next week's reports will no doubt show a decided increase after the wells have been given new ratings and allowables throughout the five producing counties.

### RANGER AND WICHITA FALLS

Bill Snebold's No. 1 Reynolds, in Section 23, Block 11, T.&P. Survey, Shackelford County, mentioned in this column last week as proving a producer from deeper pay after missing the regular 800-foot pay, was deepened to 1,179.5 feet this week, or 1 foot, and is flowing at the rate of 100 bbls. per day. It is located 1,400 feet south of production which is coming from the shallower pay.

The Atlantic Oil Producing Co. completed an exceptionally good lime producer in its No. 15 Waggoner (Lido lease) in the NE Section 51, Block 2, H.&T.C. Survey, Wilbarger County. Six and five-eighths inch casing was set at 2,687 feet and saturated lime was cored from 2,703-12 feet. It swabbed at the rate of 65 bbls. per day before being treated with 1,000 gallons of acid with a 150-bbl. oil load. It is now flowing at the rate of 1,100 bbls. per day. Location is on the western edge of the Rock Crossing Pool where wells have been light on production, but which have been proved as high potential producers when treated as the above well.

The Hanlon Gasoline Corp.'s No. 1 Powell wildcat test in Section 13, Block 6, T.&P. Survey, is promising to make the deepest producer in Stephens County. It was formerly completed as a gas well in the regular 1,900-foot pay but after the gas exhausted the well was deepened picking up saturated lime from 4,322-25 feet where the hole filled in 24 hours, showing 500,000 feet of gas and making a head of oil.

It was treated with 1,000 gallons of acid with a 100-bbl. oil load and 700 pounds pressure. Since treating it swabbed 80 bbls. in six hours. The response to the acid treatment was not as expected but the test still has a good chance of making an oil producer and opening another area to deep lime production in the county.

## Wildcat Operations in West Texas

Week Ending February 12

| Company, well, farm name, section and block— | Remarks: |
|---|---|
| **ANDREWS COUNTY** | |
| Fuhrman Pet. Co.'s No. 1-B Bonner, 1,320 ft. from N line and 1,320 ft. from E line of Sec. 25, Blk. A-43, P.S.L. Sur. | Rig up. |
| **CRANE COUNTY** | |
| Gulf Prod. Co.'s No. 1 Edwards, 330 ft. from S line and 330 ft. from E line of Sec. 21, Blk. B-18, Public School Land Sur. | Drlg. 3,985 ft. |
| Storey, Frievele & Duffy's No. 1 G. L. Brown et al, 330 ft. from N and E lines of Sec. 34, Blk. 43, Twp. 4s, T.&P.R.R. Sur. | Drlg. 107 ft. |
| **CROCKETT COUNTY** | |
| Porter Rankin's No. 1 Todd, 1,500 ft. from N line and 3,020 ft. from E line of Sec. 68, Blk. UV, G.C.&S.F. Sur. | Spudded and S.D. |
| **ECTOR COUNTY** | |
| Atlantic Oil & Prod. Co.'s No. 1 Holt, 1,980 ft. from N line and 660 ft. from E line of Sec. 19, Blk. A, P.S.L. Sur. | T.P. 4,254 ft.; swabbed and flowed 165 bbls. in 13 hrs.; T.D. 4,320 ft. |
| Atlantic Oil & Prod. Co.'s No. 2 Holt, 660 ft. from N line and 1,980 ft. from E line of Sec. 19, Blk. A, P.S.L. Sur. | Location. |
| Broderick & Calvert's No. 1 Cowden, 1,980 ft. from S line and 1,980 ft. from N line of Sec. 16, Blk. 43, Twp. 2s, T.&P. Sur. | Drlg. 3,894 ft. |
| Continental Oil Co.'s No. 1 Holt, 660 ft. from W and 1,980 ft. from S line of Sec. 20, Blk. A, P.S.L. Sur. | Drlg. 3,950 ft. |
| C. J. Davidson et al's No. 1 Cole, 660 ft. from N line and 660 ft. from W line of Sec. 10, Blk. 45, Twp. 1n, T.&P. Sur. | Location. |
| Gilpen et al's No. 1 Blakeney, 330 ft. from S, 440 ft. from E line of Sec. 32, Blk. 43, Twp. 1n, T.&P. Sur. | Plugging back to shoot; T.D. 4,403 ft. |
| Harrison et al's No. 2 Addis, 990 ft. from N line and 2,200 ft. from W line of Sec. 35, Blk. 43, Twp. 2s, T.&P. Sur. | Fishing 3,836 ft. |
| Harrison et al's No. 3 Addis, 1,650 ft. from N line and 2,200 ft. from W line of Sec. 35, Blk. 43, Twp. 2s, T.&P. Sur. | Location. |
| Humble Oil & Ref. Co.'s No. 1 Thomas J. Martin, 330 ft. from N and 440 ft. from E line of Sec. 38, Blk. 43, T.&P. Sur. | Swabbed 45 bbls. of oil Feb. 4, swabbing dry; will treat with acid. |
| Landreth Prod. Co.'s No. 2 O. B. Holt, 660 ft. from S and E lines of Sec. 15, Blk. 43, Twp. 1n, T.&P.R.R. Sur. | Rig up. |
| Landreth Prod. Co. and Llano Oil Co.'s No. 2 O. B. Holt, 1,980 ft. from W and 1,980 ft. from N, Sec. 20, Blk. A, P.S.L. Sur. | Rig up. |
| Stanolind Oil & Gas Co.'s No. 3 E. F. Cowden, 2,275½ ft. E and 330 ft. from S line, Sec. 26, Blk. 43, Twp. 3s, T.&P.R.R. Sur. | Cellar. |
| Stanolind Oil & Gas Co.'s No. 4 J. M. Cowden, 660 ft. from N and 1,980 ft. from E line of Sec. 27, Blk. 43, Twp. 1n, T.&P. Sur. | Drlg. 2,932 ft. |
| Stanolind Oil & Gas Co.'s No. 5 J. M. Cowden, 660 ft. from N and 1,980 ft. from E line of Sec. 34, Blk. 43, Twp. 1n, T.&P. Sur. | S.D. 2,105 ft. |

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### COMPLETIONS IN WEST TEXAS

#### Crane County

Continental Oil Co.'s No. 2-C Cowden, top pay 2,330 feet, total depth 2,755 feet, plugged back to 2,495 feet, treated with 1,000 gallons of heated acid, initial production 371 bbls. in 24 hours' pumping.

#### Ector County

Atlantic Oil Producing Co.'s No. 1 H. M. Jones, top pay 3,852 feet, initial production 52 bbls. per day flowing through tapered tubing, total depth 4,299 feet.

#### Glasscock County

Humble Oil & Refining Co.'s No. 2 Nat M. Washer, top pay 2,122-33 feet, initial production 528 bbls. on proration test, total depth 2,133 feet, treated with 1,000 gallons of acid.

#### Howard County

A. J. Frazier and others' No. 1 J. P. Davis, top pay 2,436 feet, initial production 67 bbls. per day flowing through casing, total depth 2,819 feet.

#### Ward County

Atlantic Oil Producing Co.'s No. 2 Jim Camp and W. D. Black, temporarily abandoned, total depth 2,720 feet. Eastland Oil Co.'s No. 2 W. D. Johnson, top pay 2,475 feet, initial production 57 bbls. per day flowing through tubing, total depth 2,554 feet. A. B. Smith's No. 1 Charles Wallace, abandoned location. S. A. Thompson and others' No. 5 W. D. Johnson, top pay 2,284 feet, initial production 369 bbls. per day flowing through 2-inch tubing, total depth 2,536 feet.

### COMPLETIONS IN WICHITA FALLS

#### Archer County

C. W. Boller's No. 7-A Perkins, sandy lime 1,456-68 feet, initial production 200 bbls., treated with acid, total depth 1,468 feet. Burns & Long's No. 2 Mankins, top sand 665-76 feet, initial production 5 bbls., total depth 676 feet; No.

3 Mankins, dry and abandoned, total depth 676 feet. C. W. Carey's No. 2 Falls County School lands, sandy lime 1,195-1,209 feet, initial production 14 bbls. per hour, total depth 1,209 feet, treated with acid. Continental Oil Co.'s No. 4-E Falls County School lands, sandy lime 1,091-1,110 feet, initial production 22 bbls. per hour, total depth 1,110 feet, treated with acid. W. R. Cooper's No. 5 S. B. Hamilton, top sand 1,105-11 feet, initial production 200 bbls., total depth 1,111 feet. W. B. Hamilton's No. 1 Giddings, sandy lime 1,132-41 feet, initial production 100 bbls., total depth 1,141 feet; No. 2-I Graham, dry and abandoned, total depth 1,182 feet; No. 1-L Graham, dry and abandoned, total depth 1,203 feet; No. 1-A Longley, sandy lime 1,142-49 feet, initial production 98 bbls., total depth 1,149 feet, treated with acid; No. 3-A Longley, sandy lime 1,142-46 feet, initial production 70 bbls., total depth 1,146 feet, treated with acid; No. 10 Pace, sandy lime 1,138-40 feet, initial production 82 bbls., total depth 1,140 feet, treated with acid. Krahenbuhl & Bradley's No. 1 Canington, sandy lime 1,170-77 feet, initial production 15 bbls. of oil and 10 bbls. of water, total depth 1,177 feet. Peckham and others' No. 1 Neale, dry and abandoned, total depth 1,253 feet. Perkins & Cullum's No. 10 Boyles, sandy lime 1,169-82 feet, initial production 20 bbls., total depth 1,182 feet. Petroleum Producers Co.'s No. 3 Richardson, oil sand 1,250-67 feet, initial production 30 bbls., total depth 1,267 feet. Texas Plains Oil Co.'s No. 1-B Garvey, dry and abandoned, total depth 810 feet.

**Young County**

Beavers-White and Duncan's No. 1 Remington, lime 536-84 feet, initial production 40 bbls., total depth 584 feet, treated with acid. Ed Bradshaw's No. 1 Speer, dry and abandoned, total depth 658 feet. F. H. E. Oil Co.'s No. 3 Stewart, dry and abandoned, total depth 545 feet. Henson and Tidwell's No. 5 James, lime 3,895-3,950 feet, shot 180 quarts, initial production 30 bbls., total depth 3,950 feet. Petroleum Producers Co.'s No. 3 Burris, oil sand 696-700 feet, initial production 15 bbls., total depth 700 feet. Pitzer and West's No. 4-A Williams, sandy lime 3,836-56 feet, initial production 35 bbls., total depth 3,856 feet, treated with acid. Sarns and Watkins' No. 1 Cullers, oil sand 539-86 feet, initial production 6 bbls., total depth 580 feet. A. H. and S. P. Schmitt's No. 2 Casey, dry and abandoned, total depth 935 feet. White and Duncan's No. 1 Howard, dry and abandoned, total depth 941 feet; No. 1 Logan, dry and abandoned, total depth 653 feet. D. L. Wolfe's No. 1 Spearman, dry and abandoned, total depth 602 feet.

**COMPLETIONS IN PANHANDLE**

**Gray County**

Chism and others' No. 2 Carpenter, gas pay 2,105-2,225 feet, initial production 65,000,000 feet of gas, total depth 2,225 feet. Skelly Oil Co.'s No. 1-B Webb, top pay 2,490-2,501 feet and 2,520-28 feet, increase at 2,563-68 feet, initial production 755 bbls. per day, total depth 2,585 feet. Continental Oil Co.'s No. 4 Wright, pay 2,544-58 feet, initial production 676 bbls. per day, total depth 2,858 feet. Danciger Oil & Refining Co.'s No. 3-A Wright, pay 2,897-2,903 feet, initial production 240 bbls. of oil and 15 bbls. of water, total depth 2,903 feet. Phillips Petroleum Co.'s No. 5 Jackson (old well drilled deeper), old total depth 3,030 feet, new total depth 3,094 feet, increase in pay at 3,015-94 feet, initial production 100 bbls. Sinclair Prairie Oil Co.'s No. 6 Worley, pay 2,840-45 and 2,850-64 feet, increase at 2,881-85 feet, initial production 760 bbls. per day, total depth 2,950 feet.

**Wheeler County**

Devore and Robinson's No. 2 Setter, gas pay 1,981-2,052 feet, initial production 63,000,000 feet of gas, total depth 2,052 feet.

## National Petroleum Agreement as Revised

(Continued from Page 11)

nent crude of 36-36.9-degree A.P.I. gravity and U. S. Motor gasoline of 60/64 octane rating, f.o.b. Group 3 in tank car lots, is that stated in Section 6 of Article 3 of the aforesaid code. The board of governors of the association may determine proper relationship in all cases not covered by the code. And the board of governors, after July 1, 1934, may determine whether and to what extent purchases of gasoline will be made to establish, maintain and support proper relationships of gasoline prices to crude oil prices higher than those now prevailing; provided, however, that no such purchases as those last mentioned shall be made while the association has on hand, not disposed of, any substantial quantity of gasoline previously purchased for the purpose of bringing the price of gasoline into proper relationship with the present prices of crude oil and maintaining and supporting such relationship; provided further, that at any time after July 1, 1934, by a majority vote of the entire board of governors or the vote of nine governors representing members of the association having in the aggregate more than 50 per cent in amount of participation in the association, purchases may be suspended entirely until they are again authorized by a majority vote of the entire board of governors and the vote of nine governors representing such majority interest in amount.

**Liquidation of Stocks**

The association shall, under rules and regulations established by its board of governors, and satisfactory to the administrator, provide for the suitable liquidation of gasoline stocks purchased and held by the agency to the end that all parties within the petroleum industry may have an equal opportunity to obtain gasoline at fair market prices.

**Can Not Borrow Money**

6. The association shall not purchase gasoline from its members, nor shall it borrow money.

7. The signatories hereto bind themselves hereby:

**Illegal Oil**

(a) To refrain from purchasing illegally produced oil or the products thereof from producers or refiners knowing or having good reason to believe the oil was illegally produced;

(b) To join the Planning and Co-ordination Committee in supporting the Federal agency in discharging the duty imposed upon it by the code of fair competion for the petroleum industry of making and enforcing crude oil allocations and controlling the supply of crude oil and gasoline and gasoline inventories;

(c) To further aid the said Planning and Co-ordination Committee in working toward a stabilization of market by adequate action designed to prevent improper and injurious marketing practices;

(d) To actively assist said Planning and Co-ordination Committee and the National Recovery Administration in the continuing effort to preserve the right of the petroleum industry to self-government in accordance with the spirit of the National Industrial Recovery Act and the petroleum code adopted pursuant to said act;

(e) To assist in the effectuation of plans and rulings of said committee, approved by the petroleum administrator, for the development of new oil pools and the allocation by the proper authorities of production from such pools;

**Assured of Supplies**

(f) To co-operate in obtaining and allocating, under the supervision of said committee, supplies of crude oil for refiners without adequate supplies to meet their reasonable and proper requirements; and, upon request, to assist said committee by placing at its disposal one (1) per cent of their respective current crude production and purchases for allocation among other refiners, pursuant to the code.

8. Obligations under this agreement shall apply not only to members of the association, but members shall extend and enforce these obligations so as to include subsidiary and controlled companies and other agencies through which members operate, but no member shall be liable for the obligations of other members or for the obligations of the association.

9. The provisions of this agreement shall bind the successors, assigns, and legal representatives of the members, and if any member shall be merged or consolidated with another member the member continuing the business shall succeed to and take over the benefits and burdens of the member so merged or consolidated.

**Present Prices or Price Fixing**

10. Nothing in this agreement contained shall be construed to prevent any member of the association from petitioning the Planning and Co-ordination Committee of the Petroleum Industry to advocate the establishment of minimum prices, or from petitioning the petroleum administrator or the President of the United States to establish minimum prices after 90 days from the date hereof, or from doing so in the meantime if the prices of crude oil should fall below their present level or be reduced by any member of this association.

**President Must Approve**

11. This agreement shall become effective when approved by the President of the United States or an officer, agent or agency duly authorized by him, and the President may withdraw such approval and terminate this agreement at any time upon finding that it is contrary to the public interest. And since Title 1 of the National Industrial Recovery Act requires that certain provisions of Section 10(b) of said title shall be contained in each agreement approved under said title said section is here set forth in full and made a part hereof, as follows: "The President may from time to time cancel or modify any order, approval, license, rule, or regulation issued under this title; and each agreement, code of fair competition, or license approved, prescribed, or issued under this title shall contain an express provision to that effect."

12. This agreement may be signed in counterparts, and all counterparts taken together shall constitute the complete agreement.

In witness whereof the parties sign.

*Banquet given by Breckenridge independent operators to members of the West Central Texas Oil & Gas Association. C. H. Hoffman of Eastland, was chosen president of the association for the present year; Marshall Young of Breckenridge, first vice president and George Callahan of Albany, second vice president*

# Cayuga Block Now Looking Like Producing Area as Anderson County Test Is Running Higher

By L. E. BREDBERG

DALLAS, Tex., Feb. 12.—The Cayuga block of the Tide Water Oil Co. and Texas Seaboard Oil Co., in northwestern Anderson County, is now looking as a possible producing area with the test of the combined companies running 441 feet higher on the top of the Woodbine section than the nearest test which was drilled by W. H. Roeser and others on the Billett farm, 3 miles to the north in Henderson County. The test topped the Austin at minus 2,980 feet, whereas the fee (Edens) test in the Cayuga area logged top of the chalk at minus 2,869 feet, 111 feet higher. Base of the Austin in the Edens test was reported by the driller as 3,414 feet. Elevation is 309 feet on the surface.

Roeser and Cosdens No. 1 Daniels, approximately 3½ miles southeast of the Cayuga test, ran much lower on the Austin chalk and Woodbine section. It topped the Austin at minus 3,776 feet and the Woodbine at 4,667 feet, according to the driller's log.

The structure on this block was worked out by the Geophysical Service, Inc., of Dallas, which worked the Long Lake structure in the same county, to the south, for the companies. The structure to the south has produced two gassers and one heavy gasser and oil producer, and the Cayuga area will be the second discovery in the county for the two companies if the present test proves a producer. Some 15,000 acres around the test is held by the two companies. They sold some edge leases and royalties under the block to various companies, realizing returns on these sales sufficient to drill at least two tests on the block, barring delays or trouble of any kind in drilling.

Top of the Pecan Gap chalk in the Edens test was logged at 2,172 feet and the base cored at 2,300 feet. The test is now drilling below 3,640 feet.

In the Long Lake area to the south, in the same county, the two companies' No. 4 Long Lake is drilling at 1,950 feet in shale and shells. This is south of the discovery. The companies' No. 5 Monnig (Long Lake), to the northeast of the discovery, is rigged up and about ready to spud. The latter test will be the most interesting of the two tests now drilling in the area as it is testing in a new direction from those already tested in the area surrounding the discovery. It will unquestionably prove whether the Long Lake area is to make an oil field of any consequence.

### Leon County

In Leon County Shell Petroleum Corp. and others' No. 1 Jones in the Summeralls Survey, topped the Woodbine sand at 5,745 feet or at minus 5,353 feet, running lower than the Beggs gasser to the south. A couple of drill stem tests have been made on the Jones test, the first test showing nothing and the second test made from 5,850-88 feet showing approximately 1,500 feet of mud, no oil, gas or salt water. Another test is to be made.

The same operators' No. 1 Lee, with an elevation of 291 feet, has cored no Austin chalk yet. It is down 4,500 feet in hard shale. It logged Pecan Gap chalk at 3,860-3,920 feet, which puts the test 122 feet lower on that chalk than the nearest test, No. 1 Phillips, drilled by the same operators approximately 2½ miles to the southwest. That test was a dry hole and cored Austin chalk at 5,225 feet with an elevation of 423 feet. The Lee test does not appear promising from correlations already made on the first marker, the Pecan.

E. L. Smith Oil Co. and others' test on the William Simpson farm in the Alfred Penn Survey, approximately midway between the Long Lake producing area and the Leon County gasser, in Leon County, has been abandoned at a total depth of 6,053 feet. Austin chalk was cored from 5,554-5,736 feet. It cored poker chip shale, sand and shells with a taste of salt.

### Navarro County

The third test of the Syam Oil Co. in southeastern Navarro County cored Austin chalk at 3,030 feet this week, showing but little difference on structural formations from the two previous tests. Elevation is 300 feet. It previously logged Pecan Gap chalk at 2,207-2,355 feet.

No other locations or completions were reported in the East Texas district this week.

Cauble and Thompson's No. 1 Bobbett in the Daniel Fuller Survey, a test that has been interesting to several companies and a considerable number of independent operators, is reaming at 4,875 feet. The interest displayed in this Wood County test was brought about by the test logging the two chalk markers high in comparison to the nearest dry holes drilled in this, the southwestern part of the county.

Another location for the Nacatoch sand area directly to the north of the Van Field, Van Zandt County, has been staked 210 feet from the north and 160 feet from the west in the northwest corner of the Davis tract which lies in the John Goodman Survey. W. E. McKinney is to drill the test.

There were 69 completions reported for the East Texas Field this week and 66 locations. Locations registered a considerable gain over the previous week while completions held to almost the same figure.

### COMPLETIONS IN EAST TEXAS

#### North Gregg County

Abernathy & Kirkpatrick's No. 8 R. M. Wood, top sand 3,603 feet, initial production 150 bbls. per hour through open tubing, total depth 3,623 feet. Atlantic Oil Producing Co.'s No. 12 Joe Bandey, top sand 3,594 feet, initial production 150 bbls. per hour through open tubing, total depth 3,641 feet. Atlantic and Sun Oil Companies' No. 48 M. Hayes, top sand 3,518 feet, initial production 120 bbls. per hour through open tubing, total depth 3,568 feet; No. 50 M. Hayes, top sand 3,523 feet, initial production 120 bbls. per hour through open tubing, total depth 3,565 feet; No. 51 M. Hayes, top sand 3,484 feet, initial production 120 bbls. per hour through open tubing, total depth 3,528 feet; No. 53 Hayes, top sand 3,511 feet, initial production 115 bbls. per hour through open tubing, total depth 3,561 feet; No. 54 Hayes, top sand 3,508 feet, initial production 180 bbls. per hour through open tubing, total depth 3,558 feet. Bond & Dillard's No. 4 J. C. Barrett, top sand 3,660 feet, initial production 60 bbls. per hour through open tubing, total depth 3,674 feet. Dearing & McBride's No. 5 Elvera Chapel, top sand 3,605 feet, initial production 35 bbls. in one-half hour through open tubing, total depth 3,622 feet. Iowa-Payne Oil Co.'s No. 3 W. H. York, top sand 3,589 feet, initial production 50 bbls. in one-half hour through open tubing, total depth 3,595 feet. Island Oil Co.'s No. 4 J. W. Akin, top sand 3,585 feet, initial production 59 bbls. in one-half hour through open tubing, total depth 3,630 feet.

Magnolia Petroleum Co.'s No. 5 Goolsby, top sand 3,540 feet, initial production 169 bbls. per hour through open tubing, total depth 3,568 feet. Selby Oil & Gas Co.'s No. 8-C Snavely heirs, top sand 3,562 feet, initial production 32 bbls. in one-half hour through open tubing, total depth 3,565 feet. Shell Petroleum Corp.'s No. 16 W. T. Burnside, top sand 3,525 feet, initial production 40 bbls. in one-half hour through open tubing, total depth 3,551 feet; No. 10 T. B. Stinchcomb, top sand 3,476 feet, initial production 30 bbls. in one-half hour through open tubing, total depth 3,514 feet. H. R. Smith's No. 6 Bauknight, top sand 3,563 feet, initial production 120 bbls. per hour through open tubing, total depth 3,604 feet. A. W. Tarrant's No. 1 Sabine River, top sand 3,608 feet, initial production 65 bbls. per hour through open tubing, total depth 3,619 feet. Virginia Oil Co.'s No. 3 T. B. Harris, top sand 3,506 feet, initial production 35 bbls. in one-half hour through open tubing, total depth 3,543 feet. Woodley-Atlantic and Sun Oil Companies' No. 8 M. Hayes, top sand 3,515 feet, initial production 35 bbls. in one-half hour through open tubing, total depth 3,534 feet. Yount Lee Oil Co.'s No. 6 Annie Lee, top sand 3,605 feet, initial production 61 bbls. through eleven-sixteenths inch tubing choke, total depth 3,625 feet.

#### South Gregg County

Olga Herrman's (receiver) No. 1-A William Roberson, top sand 3,546 feet, initial production 20 bbls. per hour by heads through open tubing, total depth 3,590 feet. American Liberty Oil Co.'s No. 10 L. P. Griffin, top sand 3,557 feet, initial production 130 bbls. per hour through open tubing, total depth 3,577 feet. Atlantic and Byrd-Frost's No. 10 M. B. Hughey, top sand 3,542 feet, initial production 150 bbls. per hour through open tubing, total depth 3,581 feet. Delta Drilling Co.'s No. 1 C. L. Still, top sand 3,542 feet, initial production 22 bbls. in 24 hours through open tubing, by heads, total depth 3,572 feet. Elliott and others' No. 2 McNeely, top sand 3,627 feet, initial production 125 bbls. per hour through open tubing, total depth 3,637 feet. General Crude Oil Co.'s No. 8 S. Scott, top sand 3,640 feet, initial production 35 bbls. in one-half hour through open tubing, total depth 3,650 feet. Gulf Production Co.'s No. 2 M. T. Cole, top sand 3,555 feet, initial production 73 bbls. per hour through open tubing, total depth 3,567 feet. Humble Oil & Refining Co.'s No. 39-B S. S. Laird, top sand 3,571 feet, initial production 74 bbls. per hour through open tubing, total depth 3,623 feet; No. 43-B S. S. Laird, top sand 3,558 feet, initial production 80 bbls. per hour through open tubing, total depth 3,629 feet.

Hunter and Rowe's No. 1 C. L. Still, top sand 3,507 feet, initial production 50 bbls. per hour through open tubing, total depth 3,576 feet. Johnson and Owens' No. 8-B M. T. Cole, top sand 3,490 feet, initial production 85 bbls. per hour through open tubing, total depth 3,515 feet. Magnolia Petroleum Co.'s No. 9 M. B. Hughey, top sand 3,515 feet, initial production 104 bbls. per hour through open tubing, total depth 3,538 feet. Reserve Petroleum Co.'s No. 2 J. M. Blackman, top sand 3,614 feet, initial production 50 bbls. in one-half hour through open tubing, total depth 3,629 feet. Shell Petroleum Corp.'s No. 17-A B. F. Laird, top sand 3,524 feet, initial production 30 bbls. in one-quarter hour through open tubing, total depth 3,558 feet. Sinclair Prairie Oil Co.'s No. 12 J. E. Lawther, top sand 3,535 feet, initial production 25 bbls. per hour through open tubing, total depth 3,592 feet. Southport Petroleum Co.'s No. 1 I.&G.N.R.R., top sand 3,563 feet, initial production 100 bbls. per hour through open tubing, total depth 3,618 feet. Texas Co.'s No. 7 W. Baxter.

## East Central Texas Wildcats

**Week Ending February 12**

**ANDERSON COUNTY**

| Company, well, farm name, section and block— | Remarks |
|---|---|
| Byrd-Frost et al's No. 1 Alice Scott, 2,200 ft. from N and 700 ft. from E lines of Joseph Crawford Sur., 1½ miles NW of Slocum | Rig. |
| Standard of Kansas' No. 1 A. W. Johnson, 845 ft. from N line, 420 ft. from E and W lines of 22.5-ac. tract. Simon Sanches Sur. | Derrick. |
| Tide Water Oil Co. and Texas Seaboard Oil Co.'s No. 1 fee, 1,400 ft. from N and E lines of survey, Samuel Snider Sur. | Drlg. 2,580 ft. |
| Tide Water Oil Co.'s No. 4 Monnig, 1,866 ft. due S of No. 1 Simon Sanches Sur. | Waiting on cmt. to set 223 ft. |
| Tide Water Oil Co. and Texas Seaboard Oil Co.'s No. 5 Monnig, 2,799 ft. N and 933 ft. E of No. 1, Simon Sanches Sur. No. 1 | Location. |

**BOWIE COUNTY**

| | |
|---|---|
| R. W. Lynn and W. R. Rolfe's No. 1 Mrs. R. D. Hart, 330 ft. out of NE cor. of Hart 20-ac. tract, 1 mile E of Nash, Thomas Price Sur. | Location. |

**CHEROKEE COUNTY**

| | |
|---|---|
| A. R. Lewis et al's No. 1 J. Bradford, 1,600 ft. from W line and 200 ft. from N line of 50-ac. tract, J. Laprella Sur. | Derrick. |
| A. F. Richardson's No. 1 P. Wood, 660 ft. from N line, 3,300 ft. from E line of 498-ac. tract, 14 miles E of Jacksonville, on Cherokee-Rusk County line, Ignacio Sanches Sur. | Derrick. |

**FANNIN COUNTY**

| | |
|---|---|
| L. Kean et al's No. 1 L. M. Boyd, 900 ft. from E line and 200 ft. from N line of survey, W. Hunt Sur. | Drlg. 1,040 ft. |

**FREESTONE COUNTY**

| | |
|---|---|
| Clyde Creighton's No. 1 Holly Bros., 354 ft. from W and center N and S lines of lease, A.B.&M. Sur. | Coring 5,140 ft. |

**GREGG COUNTY**

| | |
|---|---|
| C. H. Lyons et al's No. 1 Cooke, 330 ft. from N line of lease and S offset to Lyons' No. 1, W. R. Stephens Sur. | Derrick. |

(Continued on Page 60)

top sand 3,622 feet, initial production 85 bbls. per hour through open tubing, total depth 3,662 feet; No. 5 Lizzie Radford, top sand 3,659 feet, initial production 20 bbls. per hour through one-half inch tubing choke, total depth 3,662 feet. Vireca Oil Corp.'s No. 2 M. T. Cole, top sand 3,558 feet, initial production 90 bbls. per hour through 2½-inch tubing choke, total depth 3,659 feet.

**North Rusk County**

Danciger Oil & Refining Co.'s No. 3 George Thompson, top sand 3,658 feet, initial production 70 bbls. per hour through open tubing, total depth 3,678 feet. Freedman and Swindler's No. 3 Mayfield, top sand 3,666 feet, initial production 30 bbls. in 50 minutes through 1-inch tubing choke, total depth 3,671 feet. Gulf Production Co.'s No. 9 F. Birdson, top sand 3,586 feet, initial production 87 bbls. per hour through open tubing, total depth 3,600 feet; No. 11 Jernigan, top sand 3,614 feet, initial production 85 bbls. per hour through open tubing, total depth 3,626 feet. R. C. Lipscomb's No. 1 A. A. King, top sand 3,708 feet, initial production 25 bbls. in one-quarter hour through open tubing, total depth 3,711 feet. Magnolia Petroleum Co.'s No. 4 M. E. Peterson, top sand 3,622 feet, initial production 15 bbls. in one-quarter hour through open tubing, total depth 3,624 feet. Navarro Oil Co.'s No. 13 Brightwell, top sand 3,600 feet, initial production 35 bbls. in one-half hour through open tubing, total depth 3,645 feet. Snowden & McSweeney's No. 13 Roy Laird, top sand 3,575 feet, initial production 120 bbls. per hour through open tubing, total depth 3,587 feet.

**South Rusk County**

American Liberty Oil Co.'s No. 1 A. O. Spence, top sand 3,671 feet, initial production 25 bbls. in 48 hours flowing, total depth 3,704 feet. Baldwin & Sutton's No. 2 M. L. Thompson, top sand 3,681 feet, initial production 250 bbls. in two hours, total depth 3,730 feet. Blackwell Oil & Gas Co.'s No. 6 Samp Stone, top sand 3,625 feet, initial production 30 bbls. in one-half hour through open tubing, total depth 3,640 feet. Fox & Butler's No. 4-A Thrash, top sand 3,658 feet, initial production 200 bbls. in three hours through open tubing, total depth 3,734 feet. Gant, Garvin & Wegner's No. 1 Strickland, top sand 3,590 feet, initial production 75 bbls. per day pumping, total depth 3,612 feet. Peachtree Oil Co.'s No. 4 Ras Pool, top sand 3,505 feet, initial production 5 bbls. per hour pumping, total depth 3,570 feet. W. B. Hamilton's No. 2 M. L. Thompson, top sand 3,690 feet, initial production 100 bbls. per hour through open tubing, total depth 3,725 feet.

Humble Oil & Refining Co.'s No. 5 L. Barton and others, top sand 3,744 feet, initial production 89 bbls. per hour through open tubing, total depth 3,781 feet; No. 32 W. O. Price, top sand 3,729 feet, initial production 90 bbls. per hour through open tubing, total depth 3,778 feet; No. 33 Price, top sand 3,728 feet, initial production 97 bbls. per hour through open tubing, total depth 3,800 feet. Lucey Petroleum Co.'s No. 8 Maxwell, top sand 3,675 feet, initial production 60 bbls. per hour through open tubing, total depth 3,740 feet. Mid-Kansas Oil & Gas Co.'s No. 18 Burton, top sand 3,618 feet, initial production 80 bbls. per hour through open tubing, total depth 3,641 feet; No. 70 M. M. Cross, top sand 3,626 feet, initial production 72 bbls. per hour through open tubing, total depth 3,632 feet; No. 66 W. T. Grissom, top sand 3,673 feet, initial production 108 bbls. per hour through open tubing, total depth 3,679 feet. Octo Oil Co.'s No. 2 F. J. Cox, top sand 3,608 feet, initial production 180 bbls. in two hours through open tubing, total depth 3,725 feet. Ortiz Oil Co.'s No. 3 H. M. Hale, top sand 3,720 feet, initial production 20 bbls. per hour through open tubing, total depth 3,763 feet. Shaw & Shepps' No. 3 H. Stoddard, top sand 3,552 feet, initial production 25 bbls. per hour through open tubing, total depth 3,636 feet. Vaughan and others' No. 5 Reagan, top sand 3,713 feet, initial production 130 bbls. per hour through open tubing, total depth 3,755 feet. Venable & McClanahan's No. 7 J. A. Flannigan, top sand 3,631 feet, initial production 80 bbls. in one-half hour through open tubing, total depth 3,669 feet.

**Smith County**

Gulf Production Co.'s No. 8 Jack Wiley, top sand 3,720 feet, initial production 85 bbls. per hour through open tubing, total depth 3,734 feet.

**Upshur County**

Atlantic Oil Production Co.'s No. 14 Mager, top sand 3,560 feet, initial production 150 bbls. per hour through open tubing, total depth 3,599 feet. Reynolds and others' No. 5 J. T. Miller, top sand 3,744 feet, initial production 90 bbls. per hour through three-quarters inch tubing choke, total depth 3,763 feet.

**WILDCAT COMPLETIONS**

**Leon County**

E. L. Smith and others' No. 1 W. P. Simpson, top Pecan Gap 4,280 feet, base 4,370 feet, top Austin chalk 5,670 feet, base 5,775 feet, top Woodbine sand 6,030 feet, dry and abandoned, total depth 6,053 feet. Alfred Penn Survey.

## National Scouts to Meet at Lake Charles in May

HOUSTON, Tex., Feb. 12.—The regular annual convention of the National Oil Scouts Association of America will be held this year at Lake Charles, La., it was voted at a meeting of the executive committee of the association at Houston, February 10. Monday, Tuesday and Wednesday, May 21-23, were set as dates for the convention.

In view of the increasing geophysical and wildcat development which is going on in coastal Louisiana, the convention this year at Lake Charles is expected to be of particular importance and plans already are being laid for a record attendance. Arrangements for the convention will be in the hands of Lake Charles scouts, a committee of whom will be appointed by Tom Terry, of Smithville, Tex., president of the association.

Plans for completion and publication of the year book of the association also were discussed by the executive committee. The book for this year is due to go to the presses March 1. The work of compiling the information and articles for the various districts is progressing rapidly, it was reported.

# PIPE LINE CONSTRUCTION

### NEW IOWA PIPE LINE LAW

DES MOINES, Iowa, Feb. 12.—Iowa's proposed pipe line regulatory and inspection bill passed through the house of representatives February 7, and will come up for early discussion in the senate. The act is designed to supplant one held unconstitutional by the Iowa Supreme Court last year.

The bill vests power in the state board of railroad commissioners to supervise all pipe lines and pipe line companies and from time to time examine and inspect construction, maintenance and condition of pipe lines. Inspection fees of 50 cents a mile for each inch of diameter of pipe will be charged in the first instance of inspection, and an annual inspection of one-half that amount for each mile and inch of pipe.

The proposed act provides that before engaging in business in Iowa, pipe line companies must file a verified petition with the rail board asking for a permit to construct, maintain and operate pipe lines within the State. In each case, a hearing will be granted.

Inspection fees obtained shall go toward the administration of the act, and any balance will be paid into the general fund of the State.

### TO START MICHIGAN LINE

MUSKEGON, Mich., Feb. 12.—The American-Michigan Pipe Line Co. will proceed with plans to lay a 55-mile natural gas pipe line between the Austin Township, Mecosta County, gas pool and Muskegon next week when a permit to lay the line is expected to be received from the Michigan Public Utilities Commission, it was stated by E. H. Kifer, vice president of the new American Light & Traction Co. subsidiary and head of the Muskegon Gas Co., another local subsidiary. Mr. Kifer and Edward Fischer, engineer for the United Light & Power Co. in charge of laying the line, went to Big Rapids to confer with Taggart Brothers, Inc.

There was no opposition to the American-Michigan company's application for a permit at a hearing before the Public Utilities Commission in Lansing. The hearing was attended by Chester N. Chubb, of Chicago, president of the pipe line company; Mr. Kifer, of Muskegon, vice president and general manager; W. F. Douthirt, of New York, A.L.&T. company attorney; John L. Robinson, general manager, and Harris E. Galpin, attorney for the West Michigan Consumers Co., an industrial gas line operating concern in Muskegon; E. J. Hammer, of Muskegon, traveling auditor for the Muskegon Gas Co.; C. N. Sessions and E. C. Farmer, Muskegon attorneys.

The contract of the American-Michigan company with Taggart Brothers, Inc., calls for completion of another well before construction of the pipe line is started.

### LOOPING HUFFSMITH LINE

FORT WORTH, Tex., Feb. 12.—The Stanolind Pipe Line Co. is adding more loops to its main trunk line from Mexia to Huffsmith to increase the capacity of its looped 8 and 10-inch line to above 45,000 bbls. per day from the present capacity of around 38,000 bbls. It is laying 19.1 miles of line in three loops. One loop of 10-inch is 4 miles, the second loop covers 7.5 miles and the third loop is 7.6 miles in length. The company is now completing the installation of extra pumping station equipment started a couple of months ago.

Increasing the capacity of this line, which is under lease to the Pan American Pipe Line Co., but under supervision of O. H. Powell, superintendent of the Stanolind Pipe Line Co., Fort Worth, is being done for the purpose of having the line ready to handle a maximum load from East Texas and the North Texas district, but principally from the eastern part of the State where the Stanolind Oil & Gas Co. has a large amount of holdings and production, and in which it has been purchasing more producing properties from time to time. These properties are expected to fill the greater amount of crude requirements of the Pan American Refining Co.'s new refinery now nearing completion on the Gulf Coast.

### KERRVILLE LINE

G. W. Moore of John W. Moore & Son, Inc., Lubbock, Tex., writes that it is that firm which is planning to construct a natural gas line from the producing field in Brown County to Kerrville, supplying that city and a number of other towns. The line would be 150 miles long and the cost approximately $1,000,000. W. D. Howren of Amarillo is the engineer on the project.

### GEORGE K. DENNISON DIES

George K. Dennison, popularly known among pipe line men from Pennsylvania to Mexico as "Picks," died Saturday, February 10, at Houston, Tex. Mr. Dennison was associated with the Houston Pipe Line Co. and had been in the pipe line business for many years.

## California Gasoline Tax Collections Show Decline

SACRAMENTO, Calif., Feb. 10.—The gasoline tax for December brought $2,867,524 into the state treasury, according to J. C. Corbett, member of the state board of equalization. This is a loss of 6.8 per cent compared with December of 1932. The net taxable gallonage distributed in California during December of this year was 96,549,635.8.

The Standard Oil Co. of California and the Shell Oil Co. continue to hold top positions in the list of marketers. The following table of gasoline sales for December together with the quantities sold which were taxable are shown by companies arranged alphabetically in the following table. The December returns were 6.8 per cent under the amount of tax collected in the like month of 1932.

In the preceding month taxable gallonage of 130,081,120 was the best of the year.

Those companies reporting more than 1,000,000 gallons were:

| | Gallons actually sold | Net taxable gallonage |
|---|---|---|
| Associated Oil Co. | 15,023,208 | 8,169,030 |
| Caminol Co., Ltd. | 1,766,492 | 1,708,436 |
| Edington Oil & Ref. Co. | 1,190,009 | 1,206,382 |
| Exeter Ref. Co. | 1,566,253 | 1,468,836 |
| General Pet. Corp. of Calif. | 11,770,658 | 6,935,646 |
| Gillis, R. C., and Raymond S. Macmillan, receivers, Macmillan Pet. Corp. | 1,888,509 | 1,889,341 |
| Gillis, R. C., receiver, Western Oil & Ref. Co. | 1,506,394 | 1,517,319 |
| Hancock Oil Co. of Calif. | 2,195,219 | 2,163,475 |
| McDuffie, William C., receiver, Richfield Oil Co. of Calif. | 8,579,014 | 5,282,194 |
| Norwalk Co. | 2,145,482 | 856,617 |
| Olympic Ref. Co. | 1,288,278 | 1,231,512 |
| Petrol Corp. | 1,403,574 | 1,315,219 |
| Rio Grande Oil Co. | 2,111,972 | 2,112,697 |
| Rolapp, F. H., receiver, Sunset Pacific Oil Co. | 1,525,971 | 1,371,965 |
| Seaside Oil Co. | 5,034,074 | 932,518 |
| Shell Oil Co. | 30,250,287 | 12,043,621 |
| Standard Oil Co. of Calif. | 39,874,248 | 21,647,434 |
| Texas Co. (Calif.) | 4,200,535 | 4,073,681 |
| Union Oil Co. | 14,490,932 | 10,264,042 |
| Wilshire Oil Co. | 2,978,484 | 2,913,092 |

### T. G. PHINNY DIES

OIL CITY, Pa., Feb. 10.—Thomas Gray Phinny, 73, one of the founders of the Quaker State Oil Refining Co., died Sunday in the Artesia Hospital, Artesia, Calif., following an illness of several years.

Mr. Phinny retired from active service in the company about five years ago when he went to California. He pioneered the production of casinghead gasoline and in 1910 organized the Casing Head Gas Co. with himself as president, W. B. James, treasurer, and H. S. Phinny, secretary.

It was about this time that the Quaker State Oil Refining Co. came into being. Mr. Phinny developed a high flash and fire oil suitable for use in the first air cooled automobile. He interested J. D. and C. D. Berry in the product and they formed the Quaker State Mineral Oil Co., which became the Quaker State Oil Refining Co. in 1914. Mr. Phinny was vice president and general manager of the company and served in the latter capacity until he retired from the organization. He was also vice president and general manager of the Hopewell Oil & Gas Co. and held an official capacity with the Eastern Oil Co., an oil producing firm.

### CONTRACTOR OBJECTS TO TAX

WASHINGTON, D. C., Feb. 10.—The validity of a state tax on gasoline used by a government contractor was challenged in the Supreme Court.

The question was raised by the Trinity Farm Construction Co., of Dallas, Tex., in opposing a tax of 5 cents imposed by Louisiana on gasoline it brought into that State for use in carrying out contracts for levee construction along the Mississippi River.

D. K. Woodward, Jr., counsel for the company, insisted it was acting as an agency or instrumentality of the Federal Government in carrying out the contract, and therefore was exempt from an excise tax on gasoline it used in the construction work.

## East Central Texas Wildcats

(Continued from Page 58)

J. V. Pierce's No. 1 Tom Shaw, 3,206 ft. from N line and 8,050 ft. from W line of survey, M. V. Winkle Sur. ..... Drlg. 1,150 ft.

Max Rubin's No. 1 Sam Burton, 330 ft. out of NW cor. of 100-ac. lease, D. Sanches Sur. ..... Drlg. 1,800 ft.

HENDERSON COUNTY

Roy Black et al's No. 1 C. B. Meredith, 360 ft. from N and W lines of 64.5-ac. tract, 4 miles SE of Malakoff, Wiley Kay Sur. ..... Location.

Campbell and Champlin's No. 1 R. S. Ansley, 198 varas S, 623 varas W of NE cor. of lease, 6 miles SE of Buffalo, N. H. Thompson Sur. ..... Derrick.

HUNT COUNTY

Meade and McKennie's No. 1 Love, 300 ft. from N line, 6,300 ft. from W line of 95-ac. tract, John Gilisky Sur. ..... Rig up.

KAUFMAN COUNTY

W. J. Lewis et al's No. 1 D. Clark, 430 ft. from S line and 600 ft. from E line of survey, 6½ miles NW of Elmo ..... Spudding.

LAMAR COUNTY

Cole et al's (formerly Optometrist Oil Club) No. 1 J. M. McFaddin, 450 ft. from S and W lines of E 25-ac. tract, 10 miles NW of Paris, Joseph Dick Sur. ..... Old well to be drilled deeper; T.D. 2,506 ft.; rig up.

LEON COUNTY

Cooper et al's No. 1 W. H. Cozart, 1,000 ft. from SE cor. of 266-ac. tract in SW part of county, Thomas Gardner Sur. ..... Rig up and S.D.

Gholson Drilling Co.'s No. 1 Alliance Trust Co., 330 ft. S and E of Humble's Alliance Trust Co. 3,000-ac. tract, Simon Sanches Sur. No. 9 ..... Location.

Shell Petroleum Corp.'s No. 1 J. N. Jones, 800 ft. from N line of survey and 1,000 ft. from E line of survey, J. F. Summeralls Sur. ..... Coring 5,873 ft.

Shell Petroleum Corp.'s No. 1 Lee, 1,500 ft. from NW and SW line of farm and survey, William Cooper Sur. ..... Drlg. 4,126 ft.

Standard Oil Co. of Kansas' No. 1 A. W. Johnson, 466 ft. from NE line, 466 ft. from NW line of 100-ac. tract, Simon Sanches Sur. No. 7 ..... Location.

Tide Water Oil Co. and Texas Seaboard Oil Co.'s No. 1 G. W. Burkett, 8,500 ft. due S and 1,400 ft. from W at right angles from Magnolia Ferry, Simon Sanches Sur. No. A-23 ..... Bldg. road to location.

LIMESTONE COUNTY

J. Rodgers et al's No. 1 Vol DeLone, 1,516 ft. from W line and 600 ft. from N line of W 100-ac. tract, Pedro Varela Sur. ..... Spudding.

NAVARRO COUNTY

Syam Oil Co.'s No. 1 R. H. Mays, 300 ft. from S and E lines of 206.47-ac. tract, N. H. Carroll Sur. ..... Drlg. 3,070 ft.

RAINES COUNTY

J. W. Halsell et al's No. 1 P. F. Jones, 400 ft. out of SW cor. of 22-ac. tract, 2¼ miles S of Alba, B.B. B.&C. Sur. ..... Rig up.

RUSK COUNTY

Perry et al's No. 1 Brown and Chisum, 150 ft. E and 2,650 ft. N of SW cor. of survey, L. M. Sparks Sur. .. Drlg. 3,680 ft.

Louisiana Pipe & Supply Co.'s No. 1 S. E. Arnold, 330 ft. from E line and 1,520 ft. from S line of survey, W. M. Christian Sur. ..... Drlg. 790 ft.

Sanders et al's No. 1 M. Lee, 2,300 ft. from N line and 1,975 ft. from E line of survey, J. H. Sparks Sur. .... Waiting to test; T.D. 3,665 ft.

SMITH COUNTY

Stewart and Egan's No. 1 J. C. Bateman, 4,730 ft. from S line and 7,500 ft. from W line of survey, J. Jordan Sur. ..... Drlg. 2,800 ft.

UPSHUR COUNTY

B. F. Phillips et al's No. 1 D. A. Fleet, SE cor. of B. Holloway Sur., Charles Cooper Sur. ..... Drlg. 3,550 ft.

VAN ZANDT COUNTY

Gillum and Allen et al's No. 1 A. T. Bass, 450 ft. from W line and 150 ft. from N line of 10-ac. tract, William Hart Sur. ..... Derrick.

Griffith Bros.' No. 1 Bruce, 1,000 ft. from S line and 330 ft. from E line of 124-ac. tract, G. Martinez Sur. ..... S.D. 1,562 ft.

Humble O. & R. Co.'s No. 1 S. R. Ray, 200 ft. S, 150 ft. W of J. D. Listenbee 30-ac. lease in Nacogdoches County School Lands Sur. ..... Waiting on pumping equipment; T.D. 1,237 ft.

Pure Oil Co.'s No. 2 W. F. Swain, 300 ft. S of N line and 450 ft. E of W line of W. F. Swain 40-ac. tract, John Walling Sur. ..... Cmt. setting 312 ft.

Pure Oil Co.'s No. 2 Ray, 250 ft. N of S line and 182 ft. W of E line of tract, Nacogdoches County School Land Sur., elevation 449.7 ft. ..... S.D. 1,215 ft.

Ray Drlg. Co.'s No. 1 J. W. Mallory, 1,150 ft. from S line, 150 ft. from W line of 217-ac. tract, John Walling Sur. ..... Derrick.

Tom Sharp et al's No. 1-A M. L. Cox, 1,875 ft. from SE line and 1,800 ft. from SW line of 300-ac. tract, O. C. Nugent Sur. ..... S.D. 1,250 ft.

WOOD COUNTY

D. T. Cauble and Thompson's No. 1 N. G. Bobett, 650 ft. from S line and 220 ft. from W line of tract, 2½ miles NW of Mineola, Daniel Fuller Sur. ..... Drlg. 4,816 ft.

## Wildcat Operations in West Texas

(Continued from Page 56)

Fred Turner, Jr.'s No. 1-C F. V. Addis, 1,656 ft. from the W line of Sec. 35, T.&P. Sur., Blk. 43, Twp. 2s ... Location.

Fred Turner's No. 3-A Addis, 2,310 ft. from N and 440 ft. from E of Sec. 35, Blk. 43, Twp. 2s, T.&P. Sur. ... Derrick moved off.

PIPHER COUNTY

Condor Pet. Co.'s No. 1 Herring, 450 ft. from S and 330 ft. from W line of Sec. 192, Blk. 1, B.B.B.&C. Sur. ..... Location.

Condor Pet. Co.'s No. 2 Wilson, 640 ft. from N and 2,310 ft. from W line of Sec. 6, Blk. R, W. E. Richardson Sur. ..... Location.

Cranfill & Reynolds' No. 3 J. H. Young, 330 ft. W and 330 ft. S of NE cor. of survey, Sec. 208, B.B.B.&C. Sur. ..... Drlg. 2,000 ft.

Merry Bros. and Perini's No. 1 J. J. Steele, 330 ft. E and 150 ft. N of SW cor. NE Sec. 210, B.B.B.&C. R.R. Sur. ..... S.D. for pipe line connection; topped pay 2,915 ft.; swabbed 400 bbls. on proration test; T.D. 2,932 ft.

E. L. Smith Oil Co.'s No. 1 fee, 450 ft. from S and 330 ft. from E. Sec. 203, Blk. 1, B.B.B &C. Sur. ..... Drlg. 1,405 ft.

Roeser & Pendleton's No. 2 Frank Steele, 1,470 ft. from S and 990 ft. from W line of Sec. 210, Blk. 1, B.B.B.&C. Sur. ..... Location.

Sinclair Prairie Oil Co.'s No. 3 Frank Steele, 990 ft. from N and 330 ft. from E line of Sec. 72, Blk. 1, H.&T.C. Sur. ..... Set surface csg.

Stanolind Oil & Gas Co.'s No. 3 F. Steele, 660 ft. from S and 2,310 ft. from W line of Sec. 210, Blk. 1, B.B.B.&C. Sur. ..... Lost hole; skid 20 ft. south.

Stanolind Oil & Gas Co.'s No. 4 Steele, 1,170 ft. from S and 1,650 ft. from W line of Sec. 210, Blk. 1, B.B.B.&C. Sur. ..... Location.

Southern's No. 1 King, 660 ft. from N and 330 ft. from W line of SW Sec. 193, B.B.B.&C. Sur. ..... Drlg. 1,615 ft.

Texas Inland Oil & Gas Co.'s No. 1 First National Bank of Hamlin, 1,980 ft. from N and 990 ft. from W, Sec. 191, Blk. 1, B.B.B.&C. Sur. ..... Drlg. 2,910 ft.

Texas Co.'s No. 4 T. A. Jean, 990 ft. from N and E lines of Sec. 201, Blk. 1, B.B.B.&C. Sur. ..... Fishing; T.D. 1,085 ft.

GAINES COUNTY

R. H. Gill et al's No. 1 Crews, 1,320 ft. from S and 1,320 ft. from W line of Sec. 9, Blk. A-20, P.S.L. Sur... Drlg. 4,025 ft.

GLASSCOCK COUNTY

Continental Oil Co.'s No. 1 Gilbreath, 330 ft. from N line and 1,980 ft. from E line of Sec. 24, Blk. 33, Twp. 2s, T.&P.R.R. Sur. ..... Standing shut in after acid treatment; T.D. 2,530 ft.

Empire Gas & Fuel Oil Co.'s No. 2 Hall, 330 ft. from N and W lines of Sec. 21, Blk. 33, Twp. 2s, T.&P. Sur. ..... Plugged back to 1,485 ft.; account of cave; T.D. 1,675 ft.

Humble Oil & Ref. Co.'s No. 4 Arrington, 330 ft. from N line and 990 ft. from W line, Sec. 22, Blk. 33, Twp. 2s, T.&P. Sur. ..... Treated with acid; T.D. 2,280 ft.; no test.

Shell Pet. Corp.'s No. 3-A Kloh, 660 ft. from E and 330 ft. from S line, Sec. 13, Blk. 33, Twp. 2s, T.&P. Sur... S.D. 1,130 ft.

Simms Oil Co.'s No. 4-A Coffee, 1,357 ft. from W and 1,370 ft. from S, Sec. 15, Blk. 33, Twp. 2s ..... Treated with acid; T.D. 2,125 ft.; no test.

HOWARD COUNTY

L. C. Harrison et al's No. 2 Texas Land & Mortgage Co., 2,310 ft. from E line and 330 ft. from the S line of Sec. 4, T.&P.R.R. Sur., Blk. 30, Twp. 1s . Location

Humble Oil & Ref. Co.'s No. 2 Settles, 990 ft. from W and 330 ft. from S, Sec. 132, Blk. 29, W.&N.W. Sur. ... Set surface csg. 185 ft.

Merrick & Lamb's No. 10 Chalk, 1,650 ft. from W and 2,310 ft. from N, Sec. 125, Blk. 29, W.&N.W. Sur. .... Drlg. 1,300 ft.

Pure Oil Co.'s No. 14 Chalk, 1,650 ft. from N and 2,310 ft. from E, Sec. 125, Blk. 29, W.&N.W. Sur. ..... Running csg. 1,612 ft.

Joe Rusk et al's No. 2 G. M. Dodge Estate, 330 ft. from N line and 2,310 ft. from the E line of Sec. 9, H.&T.C.R.R. Sur., Blk. 30, Twp. 2s ..... Drlg. 2,812 ft.

Schermerhorn Oil Co.'s No. 8 Kloh, 1,650 ft. from S and 330 ft. from W, Sec. 13, Blk. 33, Twp. 2s, T.&P.R.R. Sur. ..... Drlg. 1,370 ft.

Sinclair Prairie Oil Co.'s No. 1 Perry Jones, 2,310 ft. from W and 330 ft. from N, Sec. 9, Blk. 30, Twp. 1s, T.&P.R.R. Sur. ..... Spudding.

Sinclair Prairie Oil Co.'s No. 10 Dodge, 2,310 ft. from S and 330 ft. from E, Sec. 1, Blk. 30, Twp. 1s, T.&P. R.R. Sur. ..... Drlg. 1,835 ft.

Southern Oil Co.'s No. 1 Denman, 2,310 ft. from N line and 330 ft. from W line of Sec. 10, Blk. 30, Twp. 1s, T.&P.R.R. Sur. ..... S.D. 1,965 ft.

Sun Oil Co.'s No. 6 Phillips, 1,650 ft. from S and 330 ft. from E, Sec. 14, Blk. 33, Twp. 2s, T.&P.R.R. ..... Drlg. 750 ft.

IRION COUNTY

Williams-Short's No. 1 Gentry, 2,200 ft. from N line and 2,080 ft. from W line of Sec. 1, Blk. 3, H.&T.C. Sur.. S.D. 835 ft.

JONES COUNTY

Clay & Lancaster's No. 2 Brewer, 700 ft. S and 150 ft. E of NW cor. of J. W. Martin Sur. ..... Rig up and S.D.

Jack Roberts' No. 2 Swann, 2,200 ft. from N and 1,600 ft. W of SE cor. of I. Miller Sur. ..... Drlg. 2,560 ft.

Southern Oil Corp.'s No. 2 Williams, 330 ft. from S and W line of Sec. 17, Blk. 19, T.&P. Sur. ..... Location.

LOVING COUNTY

R. L. Allen's No. 1 fee, 4,290 ft. from NE line, 330 ft. from SE line, Sec. 82, H.&T.C. Sur. ..... Location

R. L. Allen's No. 2 fee, 4,290 ft. from NE line, 990 ft. from SE line, Sec. 82, Blk. 33, H.&T.C. Sur. .... Location

R. L. Allen's No. 3 fee, 4,290 ft. from NE line, 990 ft. from NW line, Sec. 82, Blk. 33, H.&T.C. Sur. .... Location

R. L. Allen's No. 4 fee, 4,290 ft. from NE line, 330 ft. from NW line, Sec. 82, Blk. 33, H.&T.C. Sur. ... Location

Eppenauer Drlg. Co.'s No. 2-A Allen, 330 ft. from SE and 1,650 ft. from SW, Sec. 4, Blk. 2, W.&N.W. Sur... Drlg. 2,030 ft.

William Little's No. 1 Reichard & Deble, 1,320 ft. from NE and 1,320 ft. from SE line of Sec. 92, Blk. 1, W.&N.W. Sur. ..... Location.

Sinclair Prairie Oil Co.'s No. 1 Allen, 330 ft. from SE lines and 990 ft. from SW lines of Sec. 4, Blk. 2, W.&N.W. Sur. .. S.D. 4,301 ft.; 175 ft. of oil in hole.

Sinclair Prairie Oil Co.'s No. 2 Bell, 410 ft. from SE and 1,025 ft. from NE of Sec. 91, Blk. 1, W.&N.W. Sur. ..... Drlg. 1,405 ft.

Texas Pacific Coal & Oil Co.'s No. 1 Carmine, C of SE of SW of Sec. 40, Blk. 54, Twp. 1, T.&P. Sur. ..... Drlg. 1,175 ft.

PECOS COUNTY

California Oil Co.'s No. 23 Yates, 315 ft. W of No. 1 Reid, Sec. 34, Blk. 194, G.C.&S.F. Sur. ..... Moving in rotary 1,035 ft.

California Oil Co.'s No. 14 Mrs. M. A. Smith Lease No. 3, 2,028 ft. from the S line and 1,650 ft. from the E line of Sec. 35, H.&T.C. Sur., Blk. 194 ..... Location.

Cardinal Oil Co.'s No. 17-E Tippett, 150 ft. from E line of W half and 730 ft. from N of No. 5-E, Sec. 40, Blk. 194, G.C.&S.F. Sur. ..... Waiting on cmt. to set; T.D. 481 ft.

Cardinal Oil Co.'s No. 18 J. H. Tippett, 850 ft. from N and 531 ft. from W of the SE cor. of the W half of Sec. 40, G.C.&S.F. Sur., Blk. 194 ..... Location.

Cardinal Oil Co.'s No. 18-E Tippett, 1,580 ft. from N line and 640 ft. from W line, Sec. 40, Blk. 104, G.C.&S.F. Sur. ..... Location.

Culberson Bros.'s No. 15-B Monroe, 725 ft. from N line and 1,380 ft. from E line of Sec. 39, Blk. 194, G.C.&S.F.R.R. Sur. ..... Location

Humble Oil & Refining Co.'s No. 1 White, Baker, 1,320 ft. from N and E lines of Sec. 44, Blk. Z, T.C. Sur.... Drlg. 7,825 ft.

Mid-Kansas Oil & Gas Co.'s No. 10 Smith, 150 ft. from N line and 350 ft. from E line of Sec. 31, Blk. 194, G.C.&S.F. Sur. ..... T.D. 1,315 ft.; water shut off; plugged back to 1,300 ft.

Mid-Kansas O. & G. Co.'s No. 18 Smith-Taylor, 1,296 ft. from S line, 1,290 ft. from W line, Sec. 33, G. C.&R.F. Sur., Blk. 194 ..... Location.

Mid-Kansas Oil & Gas Co.'s No. 24 Smith-Taylor, 350 ft. W of S half of Turner Tract No. 1, Sec. 33, Blk. 194, G.C.&S.F. Sur. ..... Road.

Mid-Kansas Oil & Gas Co.'s No. 3 Fred Turner, Jr., 263 ft. from N and 55 ft. E of N half of Tract No. 1, Fred Turner Sur. ..... Waiting on cmt. to set 690 ft.

Mid-Kansas Oil & Gas Co.'s No. 25 Smith-Taylor, 344 ft. W of SE cor. of S half of Turner Tract No. 1, Sec. 33 ..... S.D. 750 ft.

Mid-Kansas Oil & Gas Co.'s No. 26 Smith-Taylor, 396 ft. S and 344 ft. E of SE cor. of S half of Tract No. 1 ..... Cellar.

Mid-Kansas Oil & Gas Co.'s No. 1 Turner, 350 ft. from N line and 350 ft. from W line of Turner Sur. No. 3.. S.D. 590 ft.

Mid-Kansas Oil & Gas Co.'s No. 2 Turner, 739 ft. from N and 309 ft. from W line of Turner Sur. No. 4 .... Plugged back to 1,253 ft.; S.D. waiting for cmt. to set.

Mid-Kansas Oil & Gas Co.'s No. 3 Fred Turner, 535 ft. from S line and 500 ft. from W line of Tract No. 2.. Drlg. 210 ft.

Mid-Kansas Oil & Gas Co.'s No. 8 Fred Turner, 394 ft. S and 55 ft. W of the most northerly NW cor. of I. G. Yates Sur. A-8,195, but in Fred Turner, Jr., Survey, Tract No. 1 ..... Drlg. 500 ft.

Mid-Kansas Oil & Gas Co.'s No. 13-H Yates, 408 ft. S of N line of Sec. 32 and 344 ft. W of SE cor. of S half of Tract No. 1 ..... Location.
Mid-Kansas Oil & Gas Co.'s No. 13-H Yates, 408 ft. S of N line of Sec. 32 and 344 ft. E of SE cor. of S half of Tract No. 1 ..... Location.
Mid-Kansas Oil & Gas Co.'s No. 36-A Yates, 250 ft. N and 324 ft. W from the NW cor. of Turner Tract No. 3 in Sec. 34½, I.G. Yates Sur. ..... S.D. 1,070 ft.
Mid-Kansas Oil & Gas Co.'s No. 38-A Yates, 350 ft. E and 205 ft. S from the NE cor. of Turner Tract No. 3 in Sec. 34½, I. G. Yates Sur. ..... Location.
Mid-Kansas Oil & Gas Co.'s No. 39-A Yates, 150 ft. N and 250 ft. W of the NW cor. of Turner Tract No. 4 in Sec. 34½, I. G. Yates Sur. ..... Cellar.
Mid-Kansas Oil & Gas Co.'s No. 40-A Yates, 344 ft. from E line and 395 ft. from N of SE cor. of S half of Turner Tract No. 1 ..... S.D. 680 ft.
Mid-Kansas Oil & Gas Co.'s No. 42-A Yates, 56 ft. E and 204 ft. S of the extreme NE cor. of lease, Sec. 34½, Blk. 194, G.C.&S.F. Sur. ..... Drlg. 1,185 ft.
Mid-Kansas Oil & Gas Co.'s No. 41 I. G. Yates, 480 ft. W and 204 ft. S of the most northerly NE cor. of I. G. Yates Sur. A-8,195 ..... T.D. 1,410 ft.

REAGAN COUNTY

Big Lake Oil Co.'s No. 14-C University, 725 ft. from S line and 2,730 ft. from E line of Sec. 25, Blk. 9, University Land Sur. ..... Drlg. 8,390 ft.
Big Lake Oil Co.'s No. 15-C University, 660 ft. from E line and 660 ft. from S line of Sec. 25, Blk. 9, University Land Sur. ..... Moving in boilers.
Group Oil Co.'s No. 10-B University, 1,900 ft. from N and 1,805 ft. from E line, Sec. 26, Blk. 9 ..... Cellar.
E. P. Kirschner and White's No. 1 W. A. White and McIntosh, 720 ft. from E and 800 ft. from N of Sec. 1,223, E.L.R.R. Sur. ..... Drlg. 700 ft.

RUNNELS COUNTY

Agnew & Sons' No. 2 Fowler, 1,165 ft. from S and 150 ft. from W of NE cor. of Blk. 23, N. Travis Sur. ..... Drlg. 890 ft.
Anderson et al's No. 1 W. F. James, 330 ft. from N and W lines of Subdiv. No. 20, Norvell Travis Sur. ..... Spudded and S.D.
Golden Pet. Corp.'s No. 3 McMillan, 780 ft. from W and 330 ft. from N of Subdiv. No. 22, N. Travis Sur. No. 533 ..... Drlg. 200 ft.
W. S. Sawyer et al's No. 1 Giesecke, 1,211 ft. from N and 4,606 ft. from E lines of survey, Blk. 131, James Hughes Sur. ..... Drlg. 700 ft.
Prairie Oil & Gas Co.'s No. 1 T. B. Wade, 2,597 ft. from N and 2,140 ft. from E line of Subdiv. No. 10, Norvel Travis Sur. ..... Drlg. 1,180 ft.; no report.
Wahlenmaier Pet. Co.'s No. 1 T. C. Hall, 330 ft. out of SW cor. E.T.R.R. Sur. No. 149 ..... Drlg. 2,310 ft.
F. D. Williams' No. 1 J. L. Elkins, 2,225 ft. from E and 1,300 ft. N of SW cor. of Blk. 12, but in Blk. 13, N. Travis Sur. No. 533 ..... Rig up and S.D.

UPTON COUNTY

Gulf Prod. Co.'s No. 103 McElroy, 1,980 ft. from S and 440 ft. from W Sec. 197 Blk. F, G.C.S.D.&R.G.N.G. ..... Drlg. 8,947 ft.
Powell-Gap Oil Co.'s No. 1 J. F. Lane, 1,320 ft. from W line of Sec. 1, G.C.&S.F. Sur. ..... Location.
Texas Pacific Coal & Oil Co.'s No. 1-C J. H. Sherk, 1,650 ft. from S and 330 ft. from W, Sec. 1, Blk. 3-B, M.K.&T. Sur. ..... Location.
Texas Pacific Coal & Oil Co. and Simms Pet. Co.'s No. 2 J. F. Lane, 990 ft. from the S line and 330 ft. from the W line of Sec. 36, M.K.&T. Sur., Blk. 1 ... Location.
Williams & Williams Drlg. Co.'s No. 1 Robbins, 1,650 ft. from S and 1,900 ft. from E, Sec. 4, G.C.&S.F. Sur. .. Drlg. 385 ft.

VAL VERDE COUNTY

South-Western Exploration Co.'s No. 1 E. K. Fawcett, 2,310 ft. from S and 2,310 ft. from E, Sec. 14, Blk. L, G.C.&S.F. Sur. ..... Moving in material.

WARD COUNTY

Atlantic Oil & Prod. Co.'s No. 10 Johnson, 990 ft. from NE line and 330 ft. from NW line of Sec. 9, Blk. 34, H.&T.C. Sur. ..... S.D. 1,854 ft.
Atlantic Oil & Prod. Co.'s No. 12 Johnson, 990 ft. from SE line and 990 ft. from NE line of Sec. 9, Blk. 34, H.&T.C. Sur. ..... Drlg. 2,930 ft.
Atlantic Oil & Prod. Co.'s No. 13 Johnson, 330 ft. from NE line and 330 ft. from SE line of Sec. 9, Blk. 34, H.&T.C. Sur ..... Rig up rotary.
Atlantic Oil & Prod. Co.'s No. 13 W. D. Johnson, 990 ft. from the NW line and 165 ft. from the NE line of Sec. 9, H.&T.C. Sur., Blk. 34 ..... Location.
Atlantic Oil & Prod. Co.'s No. 15 Johnson, 330 ft. from SE line and 1,650 ft. from NE line of Sec. 9, Blk. 34, H.&T.C. Sur. ..... Location.
Atlantic Oil & Prod. Co.'s No. 15 W. D. Johnson, 2,310 ft. from the NW line and 1,650 ft. from the NE line of Sec. 9, H.&T.C. Sur., Blk. 34 ..... Location.
California Oil Co.'s No. 3 York, 1,650 ft. from NW and 330 ft. from SW, Sec. 10, Blk. 34, H.&T.C. Sur. ..... S.D. 2,525 ft.; flowing 30 bbls. per hour.
California Oil Co.'s No. 5 York, 1,650 ft. from S and 990 ft. from SW, Sec. 10, Blk. 34, H.&T.C. Sur. ..... Location.
California Oil Co.'s No. 6 J. F. York, 2,310 ft. from the NW line and 990 ft. from the SW line of Sec. 10, Blk. 34, H.&T.C. Sur. ..... Location.
S. Caprito et al's No. 2 Pure-Bennett, 990 ft. from SE and 330 ft. from NE lines of Sec. 16, Blk. 34, H.&T.C. Sur. ..... S.D. 958 ft.
Gulf Prod. Co.'s No. 40 O'Brien, 1,650 ft. from N line and 330 ft. from E line of Sec. 17, Blk. F, G.&M.M. B.&A. Sur. ..... Flowed 1,650 bbls. in 24 hrs.
Gulf Prod. Co.'s No. 41 O'Brien, 1,650 ft. from N and 990 ft. from E lines of Sec. 17, Blk. F, G.M.M.B.&A Sur. ..... Drlg. 2,455 ft.
Gulf Prod. Co.'s No. 42 O'Brien, 2,310 ft. from N and 330 ft. from S. Sec. 17, Blk. F, G.M.M.B.&A. Sur. .... Drlg. 700 ft.
Humble Oil & Refining Co.'s No. 2 Louis Richter, 1,650 ft. from the NW line and 1,470 ft. from the SW line of Sec. 23, H.&T.C. Sur., Blk. 34 ..... Location.
Jack Leidecker's No. 2 Archenhold, 2,310 ft. from NE and 2,310 ft. from SE, Sec. 33, Blk. 5, H.&T.C. Sur.. Drlg. 890 ft.
Simms Oil Co.'s No. 1 W. D. Johnson, 330 ft. from the NE and SE lines of Sec. 25, H.&T.C. Sur., Blk. 34.... Drlg. 1,757 ft.
Sinclair Prairie Oil Co.'s No. 4 Archenhold, 2,310 ft. from NW line and 2,310 ft. from SW line of Sec. 32, Blk. 5, H.&T.C. Sur. ..... S.D. 3,059 ft.
Sturm-Simms Oil Co.'s No. 1 Jones, 2,310 ft. from NE and 330 ft. from SE, Sec. 25, Blk. B-29, P.S.L. Sur. .. Preparing to pump; T.D. 3,081 ft.
Tex-Mex Pet. Corp. et al's No. 2 Llano-Sloan, 990 ft. from NW and 2,310 ft. from SW, Sec. 16, Blk. 5, H.&T.C. Sur. ..... Rigging up.
Tex-Mex Pet. Corp.'s No. 2-B Shell-Sloan, 2,310 ft. from NE and 990 ft. from NW, Sec. 16, Blk. 5, H.&T.C. Sur. ..... Cellar.
Tex-Mex Pet. Corp. et al's No. 2 Cal-Archenhold, 990 ft. from NE and 330 ft. from SE, Sec. 23, Blk. 5, H.&T.C. Sur. ..... Location.
S. A. Thompson's No. 6 Johnson, 1,650 ft. from NW and 1,650 ft. from SW Sec. 9, Blk. 34, H.&T.C. Sur. ..... Drlg. 1,050 ft.

WINKLER COUNTY

Harry Adams' No. 2 Scarborough (old well being drilled deeper), 105 ft. from N and 1,000 ft. from E, Sec. 1, Blk. 77, P.S.L. Sur. ..... Drlg. 685 ft.
Magnolia Pet. Co.'s No. 4 Scarborough, 1,650 ft. from N line and 330 ft. from W line of Sec. 1, Blk. 77, P.S.L. Sur. ..... Drlg. 2,830 ft.
Magnolia Petroleum Co.'s No. 2 Walton, 330 ft. from N and 330 ft. from E, Sec. 19, Blk. 74, P.S.L. Sur. ..... Fishing 2,515 ft.
McCurdy & Easter's No. 1 Scarborough, 1,650 ft. from W and 2,310 ft. from S, Sec. 1, Blk. 77, P.S.L. Sur... Rigging up.
Sid Richardson's No. 6-A Scarborough, 330 ft. from N and 990 ft. from W, Sec. 1, Blk. 77, P.S.L. Sur. ..... S.D. 2,650 ft.
Sid Richardson's No. 5-A Scarborough, 330 ft. from W and 190 ft. from S, Sec. 1, Blk. 22-C, P.S.L. Sur. .... Moving in machine.
Sid Richardson's No. 2-B Scarborough, 2,310 ft. from E line and 990 ft. from S line of Sec. 13, Blk. 74, P.S.L. Sur. ..... Drlg. 1,300 ft.
Sid Richardson's No. 2-A State, Skelly, Scarborough, 102 ft. from N and 2,310 ft. E of NW cor. of Sec. 1, Blk. 77, P.S.L. Sur. ..... Spudding.
Sid Richardson et al's No. 2 State-Scarborough, 102½ ft. N and 2,310 ft. from E of the NW cor. of Sec. 1, Blk. 77, P.S.L. Sur., but located in State-Scarborough strip, Blk. WF ..... Location.
Sinclair Prairie Oil Co.'s No. 3 W. F. Scarborough, 1,650 ft. from E line and 990 ft. from N line of Sec. 1, Blk. 17, P.S.L. Sur. ..... Fishing 2,920 ft.
Sinclair Prairie Oil Co.'s No. 1-C Scarborough, 2,310 ft. from W and 102½ ft. S of SE cor., Sec. 1, Blk. 22-C, P.S.L. Sur. ..... Drlg. 370 ft.

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## Wildcat Operations in Texas Panhandle

**Week Ending February 12**

CARSON COUNTY

**Company, well, farm name, section and block— Remarks:**

American Ref. Co.'s No. 11 Burnett, 745 ft. from E line, 802 ft. from S line, Sec. 115, Blk. 5, I.&G.N. Sur. ..... Location.
American Ref. Co.'s No. 12 Burnett, 1,145 ft. from E line, 802 ft. from S line, Sec. 115, Blk. 5, I.&G.N. Sur. ..... Location.
Huber Pet. Co.'s No. 1 Burnett, C SW Sec. 123, Blk. 5, I.&G.N. Sur. ..... Drlg. 2,380 ft.
Skelly Oil Co.'s No. 25 (West) Schaffer, 1,320 ft. from S line, 2,200 ft. from W line of Sec. 87, Blk. 4, I.&G.N. Sur. ..... Fishing 3,150 ft.
United Crude Oil Corp.'s No. 3 Cooper, 330 ft. from N line, 310 ft. from E line, SE Sec. 5, Blk. 9, I.&G.N. Sur. ..... Rig up.

DALLAM COUNTY

Eben Warner's No. 1 Jarboe, 1,530 ft. from S line, 415 ft. from W line, Sec. 2, Blk. 2, B.&B. Sur. ..... S.D. 2,100 ft.

GRAY COUNTY

Anderson & Bean's No. 3 J. C. Volimert, 330 ft. from S line, 330 ft. from E line, SW Sec. 140, I.&G.N. Sur., Blk. 3 ..... Cellar.
British American Oil Co.'s No. 5 J. L. Phillips, 1,320 ft. S, 330 ft. W of the NE cor. W½ E½ Sec. 127, Blk. 4, I.&G.N. Sur. ..... Set csg.; T.D. 570 ft.
British American Prod. Co.'s No. 6 Phillips, 1,259 ft. from S, 330 ft. from W lines of W½ E½ Sec. 127, Blk. 3, I.&G.N. Sur. ..... Bldg. rig.
Cambrian Oil Co.'s No. 2 L. H. Webb, 990 ft. from N line, 330 ft. from E line of E½ NE Sec. 62, Blk. 25, H.&G.N. Sur. ..... Rig up.
Continental Oil Co.'s No. 5 Carrie Wright, 330 ft. from S, 990 ft. from W lines of NW Sec. 13, Blk. 3, I.&G.N. Sur. ..... Drlg. 1,848 ft.
Dixon Creek Oil Co.'s No. 1 D. W. Cary, 2,600 ft. from N line, 1,157 ft. from W line of Sec. 114, Blk. 3, I.&G.N. Sur. ..... Rig.
Dixon Creek Oil Co.'s No. 2 M. E. Jackson, 1,320 ft. S, 440 ft. W of the NE cor. SE Sec. 128, I.&G.N. Sur., Blk. 3 ..... Drlg. 1,714 ft.
Dyke Oil Co.'s No. 1 Saunders, NW cor. S½ NW Sec. 3, Blk. 1, B.S.&F. Sur. ..... Swbd. 180 bbls.; T.D. 2,948 ft.
Gulf Prod. Co.'s No. 5 Ellis Cockrell, 330 ft. from N and E lines, S½ Sec. 2, Blk. M-21, T.C.R.R. Sur. .. Location.
Hendron et al's No. 1 Husselby, 330 ft. S and E, SW SW Sec. 11, Blk. A-9, H.&G.N. Sur. ..... Rig.
Hoffman Oil Co.'s No. 3 Finley, 330 ft. from E of NW cor. Sec. 2, Blk. 1, H.&G.N. Sur., but located in Sec. 17, Blk. S, E. E. Cheney Sur. ..... Drlg. 675 ft.
Magnolia Pet. Co.'s No. 1 Haggard, 330 ft. from S and W lines of NW Sec. 113, Blk. 3, I.&G.N. Sur. ..... Rig up.
Mazda-Shell's No. 4 Coombs-Worley, 990 ft. from N line, 330 ft. from E line, Sec. 25, Blk. 3, I.&G.N. Sur. Rig.
Mid-Kansas O. & G. Co.'s No. 4 Webb, 330 ft. from S and W lines of NE Sec. 61, Blk. 25, H.&G.N. Sur. .. Testing; T.D. 2,501 ft.
Phillips Pet. Co.'s No. 3 J. E. Wright, 330 ft. S, 992 ft. E of NW cor. N½ SW Sec. 13, I.&G.N.R.R. Sur., Blk. 3 ..... Set csg. 312 ft.
Phillips Pet. Co.'s No. 5 Combs-Worley, 992 ft. N, 330 ft. E of the SW cor. W½ NE Sec. 36, I.&G.N. Sur., Blk. 3 ..... Drlg. 2,372 ft.
Phillips Pet. Co.'s No. 1 Faulkner, 330 ft. from N and W lines of SW Sec. 58, Blk. B-2, I.&G.N. Sur. ..... Set csg. 410 ft.
Phillips Pet. Co.'s No. 3 Myson, 361 ft. from S, 376 ft. from E lines of W½ NW Sec. 87, Blk. 2-B, H.&G. N. Sur. ..... Rig up.
Skelly Oil Co.'s No. 7 Vicars, 1,320 ft. from N line, 330 ft. from W line of E½ NW Sec. 127, Blk. 3, I.&G.N. Sur. ..... Testing; T.D. 3,284 ft.
Skelly Oil Co.'s No. 9 Vicars, 330 ft. from S, 1,265 ft. from E lines of SW Sec. 127, Blk. 3, I.&G.N. Sur. .. Spudded.
Skelly Oil Co.'s No. 4 Webb, 330 ft. from N line, 330 ft. from E line, Sec. 16, Blk. 25, H.&G.N. Sur. ..... C.O. after shot; T.D. 2,552 ft.
Skelly Oil Co.'s No. 5-A Webb, 330 ft. from N, 990 ft. from W lines of SE Sec. 61, Blk. 25, H.&G.N. Sur. .. Drlg. 750 ft.
Stanolind O. & G. Co.'s No. 2-C T. B. Cobb, 330 ft. from N and W lines of SE Sec. 165, Blk. 5, I.&G. N. Sur. ..... Rig up.

HUTCHINSON COUNTY

J. R. Phillips et al's No. 1 Tom Lewis, 330 ft. S and W, of the NE cor. NE Sec. 7, B.S.&F. Sur., Blk. M-23. U.R. at 320 ft.
Phillips Pet. Co.'s No. 1 Ludlum, 250 ft. from N and W lines of a square 50-ac. tract in NE cor. Sec. 3, Blk. M-21, T.C.R.R. Sur. ..... Spudded.
Harry Stekoll Oil Prod. Co.'s No. 2 E. Timons Whittenburg, 330 ft. W, 1,650 ft. from N lines of 160 acres of the W½ Sec. 18, Blk. 47, H.&T.C. Sur. .... Drlg. 700 ft.
Stanolind O. & G. Co.'s No. 2-C Ware, 330 ft. from S line, 330 ft. from E line, Sec. 20, Blk. M-21, T.C. R.R. Sur. ..... Fishing 2,976 ft.

WHEELER COUNTY

H. R. Anderson's No. 1 R. L. Harlan, 330 ft. from N line, 330 ft. from E line of NW Sec. 49, H.&G.N. Sur., Blk. 24 ..... Rig up.
Humble O. & R. Co.'s No. 1 J. P. Koons, 330 ft. from S and E lines of W¼ NE Sec. 43, Blk. 24, H.&G. N. Sur. ..... Drlg. 650 ft.
Myers & Kennedy's No. 1 Harvey, 660 ft. from S and E lines of NW Sec. 67, Blk. 13, H.&G.N. Sur. ..... Drlg. 380 ft.
R. R. Osborne's No. 1-A Admire, 330 ft. from N, 1,530 ft. from E lines of NE of Blk. 13, H.&G.N. Sur. .. C.O.; T.D. 2,198 ft.
Parkhurst & Skrivin's No. 1 D'Spain, 330 ft. from N and E lines of E¼ SW Sec. 52, Blk. 24, H.&T.C. Sur. ..... Location.
Piney Oil Co.'s No. 1 Mankins, 330 ft. from S and E lines of W½ SE Sec. 54, Blk. 13, H.&G.N. Sur. ..... Location.
Piney Oil Co.'s No. 1 Plurmox, 990 ft. from N, 330 ft. from E of E½ NE Sec. 45, Blk. 24, H.&G.N. Sur. .. Material.

# Frio County Test Flows Sulphur Water With Gas; North Government Wells to Join Extension

By B. D. STEVENSON
Staff Correspondent, Southwest Texas Fields

SAN ANTONIO, Tex., Feb. 12.—Amerada Petroleum Corp.'s No. 1 Doerring in southwestern Frio County went into the Edwards lime at 6,444-45 feet, is flowing about 50 bbls. of sulphur water hourly and making considerable gas from the Georgetown.

Amerada's No. 1 Doerring is on a block of 85,000 acres stretching from Pearsall in Frio County southwest for a distance of 30 miles into Zavala County. No. 1 Halff and Oppenheimer was drilled last year to the Edwards at 6,312 feet and got only a faint trace of oil. The block is one of the biggest assembled consisting of a great many small farms and is in a territory where there had been no wildcatting for oil and nothing ever drilled except farm water wells. Amerada spent a great deal of money doing geophysical research work in advance of making the first location.

No. 1 Doerring is about 7 miles southwest of No. 1 Halff and Oppenheimer and during the past year one other test in southeastern Zavala County and along the same line of play attracted considerable attention due to it being a deep test. It is still standing uncompleted and has not yet reached the Edwards lime. If the Amerada well proves a success it will probably be carried down.

The past week has been decidedly more active in Southwest Texas with considerable evidence of new activity to follow a little later. Northern San Patricio County which has been a "hot" territory for some time along with southern Refugio County is getting farther advanced. C. B. Bunte, Inc. is to drill two tests in northern San Patricio and John T. O'Neal one. Plymouth is now rigging up on the Welder ranch and other major companies have been acquiring acreage in that district.

In Guadalupe County along the Balcones Fault zone there is new activity with at least two Edwards lime wildcat tests to be drilled and a deal closed for developing a field southwest of the Darst Creek Field on the Zoborowlski land. W. J. Walton completed a well in that district south of the river a year or so ago but development has been delayed.

### Duval County

In northern Duval County, Texas Co.'s No. 7-A Duval County Ranch Co. on the west side of the Eagle Hill Pool proved a failure in all the lower sands and is plugging back to the Cole sand at around 1,500 feet. This test has been holding attention for some time. When it got gas in the Cole sand it mudded it off and went on down. In a Government Wells sand at 2,131-41 feet it showed considerable gas and a little oil and again in a lower Government Wells sand at 2,219-24 feet it showed some gas and oil, not enough, however, for much of a well and it was carried to the Mirando sand at 2,357-62 feet and tested salt water. It is a 660-foot west offset to the northernmost producer of the Eagle Hill Field, a field producing from the Cole sand at about 1,500 feet. It will plug back and be completed as a gas well at 1,500 feet and seems to set the limits of the west side of the field in the Cole sand.

R. D. Kelley's No. 5 Foster, the southernmost producer in the field, failed in the Cole sand and thus sets the south limits and the Shasta Oil Co. got only small wells on the east side of the field which seems to indicate limits in that direction.

The Government Wells and Mirando sand possibilities are still not entirely condemned in that district. In fact it seems certain there will be more efforts to find production in the lower sands. Shasta has location for a Government Wells sand test on the east side of the field 50 feet south of its No. 1 Foster and R. D. Kelley will carry his No. 5 Foster on the south end down to the Government Wells sands.

As it stands the Eagle Hill Pool is three-quarters of a mile long north and south and three wells wide or approximately a quarter of a mile.

### May Join Field

Texas Co.'s No. 4 Duval County Ranch Co. in Survey 362 came in for 46 bbls. an hour and Sun Oil Co.'s No. 25 Weiderkehr came in for 25 bbls. an hour. Texas Co.'s No. 4 is 1,320 feet west and 660 feet north of the Sun test and that space, good for one location, is all that separates the North Government Wells Field and the northwest extension pool from being one field. Depth of the sand in the two wells indicates now that it is a blanket sand. Texas Co. has made location for its No. 5, which is 660 feet west and the same north of Sun's No. 25, and Sun's No. 27 Weiderkehr is a south offset to Texas Co.'s No. 5 and it has the sand at 2,285-95 feet and set casing at 2,284 feet and will probably be completed over the week-end, merging the two fields together. The field thus becomes about 2½ miles wide at the north end. Sun Oil Co. now has four rigs running on its leases. It has under lease all of Survey No. 359, containing about 700 acres, with production on the east, west and north sides.

On the east side of the North Government Wells Pool, Humble's No. 31 Hahl, which was to have been an east extension, seems disappointing. At 2,343 feet it is flowing a considerable volume, of which 95 per cent is salt water.

### Wildcat Abandoned

Eaton's No. 1 Herbst, the only active wildcat in northern Duval County at this time, was abandoned the past week at 3,301 feet. It was 7 miles east of the original Government Wells Pool and Continental took a considerable interest in the block.

Buffalo-Texas is rigging up on the Escobar, in the southeast corner of the county, southwest of the two producers on the Seeligson land in Jim Wells County, and during the past week John T. O'Neal leased the Book ranch of 9,920 acres, southwest of the Buffalo-Texas location. He will do a lot of geophysical research work on the block before deciding on a location.

Completion of South Texas Oil Co.'s No. 18 Rosenberg, in the SE cor. of Block 5 of Survey 270 in the Laurel Field in Webb County, is awaited with interest. At 2,261 feet it may be in a new sand. It is about 750 feet north of the nearest producer in the field.

Caracas Oil Co. (a French concern) bought the producing leases of South Texas Oil Co. and also considerable unproven acreage. Mr. Rosenberg, who is the chief owner of South Texas Oil Co., retains an interest in the unproven acreage. No. 18 Rosenberg is being drilled on this acreage, and if a new pool develops it promises to be on the south end, the pool developing to the northeast across Survey No. 271.

### Starr County

Sufficient good weather prevailed lately to dry up the fields and work is again going in Starr County. Great Plains Oil Co.'s No. 1 Sanchez, in Survey No. 344 in western Starr County, which got a good showing around 3,500 feet along about Christmas and has been waiting ever since for an opportunity to get casing in, has been successful at last and set a string of casing to 2,570 feet. The total depth is 3,515 feet. There was some gas about 2,500 feet in shallow sands and casing is being set at that depth to shut these off and test below as it is not certain where the new showing is coming from.

In Bexar County, J. W. Johnston's No. 1 Willow Springs east of San Antonio at 2,021 feet and in the Glenrose has been given a shot of 60 pounds and is now cleaning out. It had a showing of oil at that depth but has been having difficulty getting a good test.

## Wildcat Operations in Southwest Texas

Week Ending February 10

| Company, well, farm name, section and block— | Remarks: |
|---|---|
| **BANDERA COUNTY** | |
| Palm-Winn Oil Co.'s (P. H. Winkle) No. 1 R. B. Watson, 600 ft. N of center of S line of tract in Sur. No. 71, 2 miles N from Medina City | T.D. 862 ft.; drlg. shale. |
| **BASTROP COUNTY** | |
| Chas. E. Anderson's (Ca-Tex O. & G. Dev. Co.) No. 1 Pendergrass, 1,343 ft. from NE line, 310 ft. from SE line of 130-ac. tract in Henry Warnell Sur. | T.D. 510 ft.; S.D. for fuel. |
| Humble O. & R. Co.'s No. 1 Ollie Carter, 951 ft. SW from NE cor. and 330 ft. NW from SE line of 117.36-ac. tract near Elgin | Derrick. |
| Don B Megahan's No. 1 Charles Holcomb, 350 ft. NW of NW line of W. P. Watts' 75.5-ac. tract, and 400 ft. NE of SW line of John W. Bunton Sur. | Building derrick. |
| Sun Oil Co.'s No. 1 Page-Probst, 330 ft. from E line, 330 ft. from S line of 103-ac. tract in Andrew Mays Sur. | T.D. 2,809 ft.; coring Serpentine. |
| T. T. Word's No. 1 A. W. Franks, 330 ft. from S and W lines of E 100 acres out of Franks' 177-ac. tract in Nathaniel Deck Sur., 4 miles N from Dale | Spudded in. |
| **BELL COUNTY** | |
| Gus Winston et al's No. 3 Warrick, 100 ft. N of James Scroggins' No. 1 Warrick, in Elijah Ingram Sur. | T.D. 2,155 ft.; drlg. |
| **BEXAR COUNTY** | |
| Cosby et al's No. 1 Ruiz, SE cor. of 82-ac. tract in F. Rowland Sur. No. 48 | T.D. 1,410 ft.; drlg. |
| S. W. Forrester's No. 1 Appelt, 160 ft. E of Corpus Christi Road, 1,666 ft. S of N line of tract in M. Urregias Sur. | T.D. 1,350 ft.; S.D. |
| Thos. Gorton's No. 1 Edward Jackel, 600 ft. from N line, 800 ft. from E line of tract in J. Ward Sur. | T.D. 150 ft.; drlg. |
| George L. O'Neill's No. 1 Neimann in Juan Montez Sur. No. 6 | T.D. 1,301 ft.; drlg. |
| J. W. Johnson's No. 1 Willow Springs, 150 ft. from N and W lines of lease in B. Munoz Sur. No. 151 | T.D. 2,021 ft.; shot with gelatin; C.O. |
| Fred A. Perrenot's No. 1 Russell, 750 varas from NE line, 54 varas from NW line of 500-ac. tract in Rodriquez Sur. | T.D. 1,315 ft.; standing. |
| N. H. Price's No. 1 Barragan, 150 ft. from S and E lines of 60-ac. tract | T.D. 419 ft.; S.D. |
| N. S. Powell's No. 1 M. Sanner, 400 ft. from E line, 5,280 ft. from N line of 128-ac. tract in Ruiz Sur. No. 47 | T.D. 135 ft.; standing. |
| C. A. Smith's No. 1 Henry Lamb, 750 ft. from N and E lines of Lamb farm, in de la Garza grant | T.D. 850 ft.; standing. |
| **BLANCO COUNTY** | |
| Blanco Development Co.'s (McGee) No. 1 A. J. Dittmar, 1,320 ft. from S line, 150 ft. from W line of George Evans Sur. No. 58, 4 miles NW of Johnson City | T.D. 1,305 ft.; P.B. to 1,050 ft. |
| Rogers et al's (formerly Pedernales Pet. Corp.) No. 1 Lester, 550 ft. from N line, 6,100 ft. from W line of Antonio Bendrand Sur. | T.D. 400 ft.; standing. |
| **CALDWELL COUNTY** | |
| S. S. Cargill's No. 2 Damereau, 150 ft. from W line, 450 ft. from N line of D. Cooper Sur. | Location. |
| C. J. Webster O. & G. Co.'s No. 1 Robertson, 770 ft. S and E from NW cor. of 100-ac. tract in John A. Nelli Sur. | Rigging up. |
| Whitfield et al's No. 1 Wilms, 160 ft. from S line, 3,100 ft. from E line of 165-ac. tract in Cornelius Grenshaw Sur. | T.D. 1,175 ft.; drlg. in chalk. |
| **COMAL COUNTY** | |
| Theo. Hicks et al's No. 1 Gruene, 435 ft. from NE line, 414 ft. from NW line of H. Foster Sur. No. 34, 3 mi. NE from New Braunfels | Spudded and stancing. |
| **DEWITT COUNTY** | |
| Humble O. & R. Co.'s No. 1 Kuester, 4,100 ft. from N line, 466 ft. from E line of lease in S.A.&M.G. R.R. Sur. No. 7 | T.D. 1,000 ft.; drlg. |
| **DUVAL COUNTY** | |
| Buffalo-Texas Drlg. Synd., Inc.'s No. 1 Escobar, 700 varas from W line, 1,000 varas from N line of 930-ac. tract in Francisco grant | Rigging up. |
| Eaton et al's No. 1 Herbst, 1,650 ft. from E line, 330 ft. from S line in S.A.&M.G. Sur. No. 71 | T.D. 3,301 ft.; abd.; dry. |
| Humble O. & R. Co.'s No. 2 Peters, 1,320 ft. from N line, 330 ft. from W line of Sur. No. 15 | Rigging up. |
| **EDWARDS COUNTY** | |
| Love and Evans' No. 1 Steve Brown, 660 ft. from N and E lines of Sec. 66, G.W.T.&P.R.R. Sur., 15 miles W of Rock Springs | T.D. 3,002 ft.; moving in heavy rig. |
| **FRIO COUNTY** | |
| Amerada Pet. Corp.'s No. 1 Frank Doering, 34 ft. from W line, 1,700 ft. from S line of Tract No. 7 in Marcia Louisa Carranza Sur. No. 302 | T.D. 6,441 ft.; drlg. in Georgetown. |

(Continued on Page 92)

# Wildcat Well in Russell County, Kansas, Attracts Attention With Good Deep Sand Showing

By JAMES McINTYRE

The most interesting well in Kansas in the past week was Tom Palmer and Phillips Petroleum Co.'s wildcat test in Russell County, Section 22-13-14w, which had 2,000 feet of oil in the hole from 3,283-86 feet. There is some doubt as to whether this is in conglomerate or Siliceous lime.

An important test of Roth & Faurot and others in Section 15-24-5w, in Reno County, was dry and abandoned at 3,935 feet.

Aside from the above wells field work was of the routine order for the most part.

### Production by Pools

Estimated daily average production of important pools in Kansas for the week ending February 10 and for the preceding week was as follows:

| | Feb. 10 | Feb. 3 |
|---|---|---|
| Hollow | 8,360 | 9,255 |
| Ritz-Canton | 12,730 | 13,420 |
| Voshell | 6,690 | 7,765 |
| Sedgwick County | 6,235 | 4,775 |
| Nikkell | 3,525 | 3,190 |
| Ellsworth County | 2,421 | 2,096 |
| Barton County | 578 | 310 |
| Rice County | 6,219 | 6,166 |
| Reno County | 2,365 | 2,940 |
| Ellis County | 378 | 264 |
| Kingman County | ... | 650 |
| Stafford County | 404 | 635 |
| Russell County | 5,350 | 6,831 |
| Greenwood County | 12,500 | 12,000 |
| Butler County | 17,300 | 17,800 |
| Other pools | 21,140 | 20,258 |
| Total | 106,195 | 108,355 |

L. H. Wentz and the Continental Oil Co. have a rig up for a wildcat test, No. 1 Kerns, SE cor. Section 6-34-2w, Sumner County.

Deal and others' No. 1 Kelly, NW cor. SW Section 2-33-2e, Cowley County, was abandoned. It was a hole full of water from Siliceous lime at 3,519-27 feet. Wilcox sand at 3,492-3,506 feet was dry.

Sinclair Prairie Oil Co.'s No. 7 Dibbens, NW NE NE Section 22-32-4, Cowley County, had 2,300 feet of fluid in the hole from Siliceous lime at 3,263-68 feet.

Barker & Morgan's No. 2 Ferguson, SW NE NW Section 23-30-8, plugged back from 2,912 feet, was acidized in Kansas City lime at 1,889-1,900 feet, but pumped only 15 bbls. the first 24 hours. It was completed.

### Sedgwick and Butler Counties

D. Lauck and Shoreline Oil Co. were drilling at 685 feet in a test, No. 1 Jordan, NW SW SW Section 6-28-1w, Sedgwick County.

Aylward Drilling Co.'s No. 1-A Robbins, NE SW SW Section 21-28-1e, Butler County, was abandoned at 1,995 feet.

Richmond and others made a location for No. 1 Davis, NW cor. SE Section 34-27-3, Butler County, a wildcat.

Blakesley & Wentz' No. 1 Beadles, NW SW NE SE Section 5-27-6, Butler County, deepened from 2,850 feet, swabbed dry when tested above 3,117 feet, and was shut down.

Hartman and others' No. 1 Jones, C NW SW Section 19-25-1w, a wildcat plugged back from 3,505 feet to 2,914 feet, pumped 1 bbl. of oil and 12 bbls. of water per hour and was shut down for orders.

### Greenwood and Woodson Counties

Sheedy and others' No. 2 Aikens, SE NE NW SW Section 19-25-14, Woodson County, was shot with 80 quarts at 1,412-74 feet and pumped 60 bbls. in 24 hours. It was completed.

A. M. Landon and others' No. 6 Smith, C NW NW Section 8-24-12, Greenwood County, is a 15-bbl. pumper completed at 1,725-39 feet.

Oko Oil Co.'s No. 4 Winterschied, 200 feet south and 714 feet east of C Section 6-24-14, Woodson County, pumped 42 bbls. in 24 hours and was completed. It was acidized at 1,695-1,714 feet.

Gore and Phillips have machine rigged up for No. 7 Beal, NE SW NE Section 28-23-11, Greenwood County.

Oko Oil & Gas Co. has made a location for a wildcat test, No. 1 Austin, C SE Section 11-22-10, Greenwood County. Skelly Oil Co. and Tidal Oil Co. have machine rigged up for No. 27 Wick, NW SE SW Section 27-22-11.

The Great Southern Oil Co.'s No. 32 Hull, CEL NE NE NE Section 10-26-8, was drilling at 1,158 feet. The interesting part of this is that it is a lease on which the well was drilled that put Greenwood in the list of oil-producing counties in Kansas back in 1917.

In the Hollow Pool, Harvey County, J. E. Mabee, Inc., and Shell Petroleum Corp.'s No. 1 Nikkell B, SW cor. Section 8-22-3w, was shot with 10 and 15 quarts in Wilcox sand at 3,560-71 feet. While cleaning out and swabbing it made an estimated 25 bbls. per hour.

Mid-Kansas Oil & Gas Co.'s No. 3 Klassen, NW NE NW Section 30-22-3w, drilled to 3,545 feet and the hole filled with fluid 3,200 feet. Wilcox sand was topped at 3,490 feet. It was plugged back to 3,534 feet. There was a showing of oil at 3,494-96 feet, but 1,200 feet of water arose in the hole from 3,498 to 3,504 feet.

J. E. Mabee, Inc., and Shell Petroleum Corp. were rigging up rotary for No. 6 Martens, 825 feet from north line and 990 feet from east line, SE Section 19-22-3w, and Mid-Kansas Oil & Gas Co. has a rig up for No. 8 Duerkson, NE SW NE Section 19-22-3w. Magnolia Petroleum Co. was drilling at 750 feet in No. 5 Schmidt, SE NW NE Section 30-22-3w.

### Reno County

The wildcat test of Roth & Faurot and others, No. 1 Yoder, C NW NW Section 15-24-5w, Reno County, was a failure and has been abandoned at 3,935 feet. Wilcox sand was found at 3,875 feet; salt water was uncovered at 3,880 feet. The test drilled through Lansing lime, chat, Mississippi lime, Misener sand, Viola lime and Wilcox sand and found no oil in any of the formations.

Sinclair Prairie Oil Co.'s No. 1 Stalcup, C SW NW Section 36-23-4w, Reno County, flowed 10 bbls. per hour for 10 hours. It was then treated with 1,000 gallons of acid, but no test had yet been made. First oil showed at 3,332 feet, total depth 3,374 feet.

The Texas Co.'s No. 1 Stucky, C NW NW Section 36-23-4w, flowed 205 bbls. in 24 hours and 167 bbls. the second day from chat at 3,257-3,360 feet.

### McPherson County

Harris & Haun and Phillips Petroleum Co.'s No. 1 Rupp, a wildcat test in SW cor. Section 12-21-2w, McPherson County, had a hole full of water at 3,003 feet and was drilling ahead. Mississippi lime was topped at 2,953 feet and there was a showing of oil and gas at 3,000 feet.

Slick, Pryor & Lockhart, Inc., had rig up for No. 1 Ordineal, a wildcat, SE SW SE Section 21-20-3w.

W. C. McBride, Inc., has taken away the rig from No. 1 Goering, SE SW NW Section 27-20-3w, and is said to have abandoned the location.

Gypsy Oil Co. has made a location for No. 3 E. Stucky, SE NW SE Section 33-20-3w.

Sinclair Prairie Oil Co.'s No. 7 McCurdy, NW NE SE Section 33-20-3w, was completed. It pumped 619 bbls. in a 24-hour potential test. It is producing from Wilcox sand at 3,290-3,304 feet, which had been shot. Rig is up for No. 8 McCurdy, SW NE SE Section 33. McBride, Inc.'s No. 3 Griffin, SE SW Section 14-19-2w, in the Ritz-Canton Field, pumped 852 bbls. in 24 hours on a potential test and was completed. It had been acidized in Viola lime at 3,365-70 feet.

Helmerich & Payne and Shell Petroleum Corp.'s No. 2 Russell, NE cor. Section 23-19-2w, was completed. It pumped 470 bbls. in 24 hours in a potential test. It produces from Viola lime acidized at 3,381-90 feet. No. 3 Russell, 280 feet from north and west lines, NE Section 23-19-2w, was being rigged up. Gypsy Oil Co.'s No. 4 Lovett, NE NW NW Section 24-19-2w, was acidized in Viola lime at 3,389-97 feet, and pumped 359 bbls. in 24 hours, but it was not a potential test.

Lario Oil & Gas Co.'s No. 3 Grattan, SW SE SW Section 24-19-2w, was deepened from 2,978 feet to Viola lime at 3,387-3,402 feet, was acidized and later pumped 391 bbls. in 24 hours in a potential test. It was completed.

Phillips Petroleum Co. completed No. 3 Wiles, NE cor. Section 25-18-2w. It pumped 89 bbls. in 24 hours from Viola lime at 3,407-16 feet.

Wolf Creek Oil Co. and others' No. 1 Krehbeil, NE NW NW Section 25-19-2w, was deepened from 2,967 feet to the Viola lime at 3,396-3,408 feet, which was given an acid treatment. The well produced 160 bbls. in 24 hours on the swab. It was re-treated with acid and pumped 414 bbls. in 24 hours. It was completed.

Darby Petroleum Co.'s No. 2 Doane,

(Continued on Page 79)

## Wildcat Operations in Kansas

Week Ending February 10

(Descriptions are East unless marked otherwise)

| Company, farm and location— | Remarks: |
|---|---|
| **BARTON COUNTY** | |
| Gypsy Oil Co.'s No. 1 Soderstrom, SE NE NW Sec. 21-17-13w | Coring Siliceous lime 3,521-25 ft. |
| Skelton et al's No. 1 Ott, C SE SE Sec. 16-19-14w | P.B. to 3,255 ft.; acidized; pumping wtr. |
| **BUTLER COUNTY** | |
| DeGenther et al's No. 1 Marnane, NW cor. Sec. 29-26-3 | Cellar. |
| **COWLEY COUNTY** | |
| Deal et al's No. 1 Kelly, NW SW Sec. 2-33-2w | Siliceous lime at 3,519-27 ft.; H. F.W.; abd. |
| Yarnell et al's No. 1-A Speer, SE NE NE Sec. 31-33-6e | U.R. 6-in. csg.; T.D. 2,310 ft. |
| Van Meter et al's No. 1 Moore, NE cor. Sec. 5-35-4 | Rig. |
| **DICKINSON COUNTY** | |
| Dutch Oil Co.'s No. 1 Phillips, C NE NW Sec. 15-15-1e | Spudded and abd. |
| **ELLIS COUNTY** | |
| Ashby et al's No. 1 Polycyn, NE SE Sec. 12-13-16w (O.W.D.D.) | Set 5-in. 3,110 ft.; T.D. 3,140 ft. |
| **ELK COUNTY** | |
| Lerke et al's No. 1 Macon, C NE NE Sec. 5-31-10 | Spudded and S.D. |
| **FINNEY COUNTY** | |
| National Ref. Co. et al's No. 1 Smith, C SE SW Sec. 3-23-29w | T.D. 3,323 ft.; fishing. |
| **GREENWOOD COUNTY** | |
| DeGenther et al's No. 1 Garrison, NW NE NW Sec. 20-25-11 | Drlg. 1,885 ft. |
| **HARVEY COUNTY** | |
| Hartman et al's No. 1 Jones, C NW SW Sec. 19-25-1w | T.D. 2,940 ft.; P.B. to 2,924 ft.; pumping wtr.; S.D. |
| **KINGMAN COUNTY** | |
| Stanolind and Amerada's No. 1 Hilger, SE cor. NW Sec. 16-26-4w | Drlg. 600 ft. |
| **McPHERSON COUNTY** | |
| Slick, Pryor & Lockhart's No. 1 Ordineal, SE SW SE Sec. 21-20-3w | Rig. |
| Phillips Pet. Co.'s No. 1 Tinsley, C SW SE Sec. 5-2-1w | Drlg. 2,038 ft. |
| Dieter et al's No. 1 Carlson, SE cor. Sec. 4-19-3w | Lime 3,155-80 ft.; wtr.; abd. 3,501 ft. |
| Jim Madison's No. 1 Boesker, SE NW Sec. 29-20-1w | Spudded. |
| Harris & Haun's No. 1 Rupp, SW cor. Sec. 12-21-2w | H.F.W. 3,003 ft.; drlg. ahead. |
| Wakefield & Hawkins' No. 1 Smith, SW SE Sec. 17-17-1w | Drlg. 1,625 ft. |
| **PHILLIPS COUNTY** | |
| Ashby et al's No. 1 Close, C SE Sec. 24-5-18w | Drlg. 1,500 ft. |
| **RENO COUNTY** | |
| Stanolind and Amerada's No. 1 Hilger, SE NW Sec. 16-26-4w | Rigging up. |
| Roth & Faurot's No. 1 Yoder, C NW NW Sec. 15-24-5w | H.F.W. 3,890-3,935 ft.; abd. |
| **RICE COUNTY** | |
| Slick, Pryor & Lockhart's No. 1 Schmidt, C NW NW Sec. 15-18-10w | Drlg. 2,725 ft. |
| El Dorado Ref. Co.'s No. 1 Wernet, SW NE Sec. 12-20-6w | T.D. 3,303 ft.; U.R. 8-in. csg. |
| Lario O. & G. Co. and Elwell's No. 1 Russell, NE SW Sec. 29-23-7w | T.D. 3,256 ft.; U.R. 8-in. csg. |
| Geo. Dickey et al's No. 1 Hunter, NE cor. Sec. 35-19-7w | S.D. 1,210 ft. |
| Langston et al's No. 1 Markle, NE SW Sec. 1-20-9w | T.D. 1,057 ft. |
| Smith & Ash et al's No. 1 Wilkins, SE cor. Sec. 13-17-10w | Rig on ground. |
| **ROOKS COUNTY** | |
| Ashby et al's No. 1 Stockton, C SW SW Sec. 15-8-19w | Moving in. |
| Phillips Pet. Co.'s No. 1 Dopita, C SW SW Sec. 31-8-17w | Spud; S.D. |
| **RUSSELL COUNTY** | |
| Western Exploration Co.'s No. 1 Andres, SW cor. Sec. 30-15-12w | Drlg. 1,175 ft. |
| Tom Palmer's No. 1 Steinle, NW SW Sec. 22-13-14w | U.R. 6-in. csg. to 3,193 ft. |
| **SEDGWICK COUNTY** | |
| Cameron et al's No. 1-A Funk, SW SE NW Sec. 6-26-2e | Drlg. 3,305 ft. |
| Hess & Boersma's No. 1 Berg, C SE SE NE Sec. 15-20-2w | T.D. 2,992 ft.; U.R. 8-in. csg. |
| D. Lauck and Shoreline Oil Co.'s No. 1 Jordan, NW SW SE Sec. 6-28-1w | Drlg. 685 ft. |
| Wentz et al's No. 1 Stockamr, SW NE Sec. 31-26-2w | Base of lime 3,973 ft.; running 5-in. csg. to 4,000 ft. |
| **STAFFORD COUNTY** | |
| Atlantic Oil Prod. Co.'s No. 1 Willinger, C NE NE Sec. 18-22-11w | Siliceous lime 3,693-3,752 ft.; wtr.; abd. |
| Vickers Pet. Co. and Phillips Pet. Co.'s No. 1 Cravens, SW NE Sec. 15-25-11w | Drlg. 2,635 ft. |
| **SUMNER COUNTY** | |
| Wentz and Continental Oil Co.'s No. 1 Kerns, SE cor. NE Sec. 6-34-1w | Rig. |
| **WOODSON COUNTY** | |
| Wolf Creek Oil Co.'s No. 1 Larber, NW cor. Sec. 35-25-14. | T.D. 796 ft.; fishing. |
| Lewis Bros.' No. 1 Riggs, SW cor. Sec. 10-26-14 | Set pipe at 765 ft.; S.D. |

# Wildcat in Oklahoma County Shows Oil From Hunton Lime; State Production Increases

By JAMES McINTYRE

The situation in the Oklahoma City Field, where it is believed that by spring many, if not most of the wells will have to be put on gas lift or other artificial means of raising the oil, was discussed at a meeting of the Corporation Commission on Friday and Saturday.

Don Knowlton, Phillips Petroleum Co. engineer, recommended that the potential of last October be reduced 60 per cent in the north part of the field and 30 per cent in the southern part. Robert Galbreath of the Black Gold Oil Co., recommended a 70 per cent potential cut in the whole field. Both men suggested that the decline curve be optional—that is if an operator objected to the drastic cut, he could take a potential test if he desired to do so.

Knowlton submitted four objections to open flow potential tests, which method appears to be favored by most of the operators in the field and by the state umpire.

Knowlton's objections were that open flows would damage wells making water; damage wells offsetting wells making water; increase the expense of preparing wells for potential tests and create a hazard to wells and lease equipment and to nearby property.

Knowlton said that a group of engineers representing a dozen of the largest companies in the oil business had made a survey of all the prorated fields in the United States and their recommendation was that open flow potential tests should be eliminated because of damage to fields, physical and economic waste and because of inequities between operators and leases.

E. J. McKee, engineer for the Wirt Franklin Petroleum Corp., was another objector to open flow tests.

Bob Galbreath claimed it would cost between $5,000 and $8,000 for his company to recondition three wells, and he thought the expense would be proportionately the same with other companies.

J. R. McWilliams, assistant state umpire, is quoted as saying that 48 wells in the Wilcox zone in the Oklahoma City Field will "go dead" or will have to be put on artificial lift within 60 days after taking a potential test.

### New Pool Near Newalla?

Oil men are wondering whether or not Oklahoma has a new oil field in Oklahoma County. The showing in the Springrose Drilling Co. and Watchorn's No. 1 Edwards, C SE SE Section 19-11-1e, near the town of Newalla, has Hunton lime at 6,025-69 feet and 2,300 feet of oil in the hole, the level of which bailing does not lower. The oil rose to within 1,500 feet of the top of the hole coming up through 1,800 feet of mud. On Sunday the showing in the well gave rise to the belief that the test was good for 150 bbls. on the swab in the present state of the hole. This test is on a structure 18 miles north and south and about 4 to 5 miles east and west at the widest part. Some of the big companies "shot" this whole territory in seismograph tests but did not find satisfactory indications, but independent geologists and seismographers thought better of it and the test was started 3 miles west of Newalla and 13 miles east and a little south of Oklahoma City.

The showing started a busy royalty campaign in the Newalla sector. Most of the territory had already been leased up, mostly for protection.

Production in the State increased 121,545 bbls. per day in the past week compared with the previous week's figures. The big increase was caused by operators in the Oklahoma City Field taking a large share of their monthly allowable in the first half of the month. The big production will doubtless be continued another week and then will slip downward again to a level which will give the State its allowable for February.

### Oklahoma Production

Estimated daily average production in Oklahoma in the week ending February 10 and in the preceding week was as follows:

| | Feb. 10 | Feb. 3 |
|---|---|---|
| Allen | 8,785 | 8,590 |
| Bristow-Slick | 10,200 | 10,250 |
| Cushing-Shamrock | 13,500 | 13,000 |
| Healdton | 9,100 | 9,100 |
| Hewitt | 4,800 | 4,800 |
| Burbank | 10,000 | 10,000 |
| Balance of Osage | 21,500 | 21,000 |
| Lucien | 4,955 | 5,815 |
| Bowlegs | 9,610 | 8,585 |
| Carr City | 5,540 | 4,905 |
| Earlsboro | 8,590 | 7,580 |
| East Earlsboro | 10,955 | 10,465 |
| South Earlsboro | 1,290 | 1,005 |
| Little River | 13,210 | 12,425 |
| West Little River | 635 | 725 |
| Seminole | 9,700 | 9,735 |
| East Seminole | 1,030 | 1,145 |
| Searight | 2,215 | 2,155 |
| Maud | 1,335 | 1,285 |
| Mission | 4,040 | 3,880 |
| St. Louis-Pearson | 22,895 | 18,775 |
| Cromwell | 4,850 | 4,850 |
| Oklahoma City | 206,365 | 94,320 |
| Tatums | 7,370 | 7,450 |
| Sholem-Alechem | 4,750 | 4,500 |
| Duncan | 4,500 | 4,500 |
| Tonkawa-Garber-Thomas | 6,750 | 6,750 |
| Holdenville-Fish | 6,605 | 6,400 |
| Wewoka | 4,850 | 4,500 |
| Other fields | 85,015 | 84,905 |
| Total | 504,940 | 383,395 |

### Osage County

Mead Oil Co. and Elfred Beck's No. 1, NE NE SW Section 10-25-6, South Burbank Pool, the well that prompted operators to pay fancy prices for acreage near it in the last sale of Osage leases, was shot with 10 quarts in sand at 2,820-30 feet and flowed 860 bbls. in 24 hours, 905 bbls. the second day, 920 bbls. the third day and 882 bbls. the fourth day. No. 2 on the lease, NW NE SW Section 10, was drilling at 1,400 feet, and No. 3, SE SE SW Section 10, was drilling at 690 feet.

Sinclair Prairie Oil Co.'s No. 1, SW SW NW Section 11-24-7, Naval Reserve area, drilled to Arbuckle lime at 2,875-84 feet, showed water. It was plugged back to 2,866 feet, where it will be shot.

Champlin Refining Co. completed its No. 3, 725 feet from north line and 320 feet from east line, SE Section 16-24-7. This well flowed 477 bbls. the first 11 hours after it was shot with 120 quarts at 2,612-60 feet. On later tests it flowed 677 bbls. in 24 hours and 234 bbls. in an another 24 hours. Same company's No. 5, NW NW SE Section 16, was shot with 150 quarts at 2,616-76 feet and flowed 591 bbls. the first 12 hours and 853 bbls. the first 24 hours. Later it flowed 363 bbls. in 24 hours. No. 6 on the same lease, NE NW SE, was shot with 150 quarts at 2,606-83 feet and flowed 408 bbls. the first 24 hours and 368 bbls. the second day. No. 4 on the lease, SW SW SE, is represented by a rig on the ground; No. 7, 1,270 feet north and 330 feet west of SE cor., was drilling at 860 feet; No. 8, C SW NW SE, was spudding, and rig was being built for No. 9, 1,320 feet south and 303 feet east of C Section 16.

Continental Oil Co. and Gypsy Oil Co. drilled deeper in No. 1, SE SE NE Section 21-24-7, from 2,590 feet to 2,618 feet, and shot it with 165 quarts at 2,570-2,618 feet. The well flowed 298 bbls. in 24 hours and then "went dead" and the crew was cleaning out.

Norbla Oil Co.'s No. 1, SW SE NE Section 25-24-7, missed Bartlesville sand and was drilling at 2,685 feet, in Mississippi lime, topped at 2,520 feet.

New work in the county in addition to wells above noted included the following operations: H. H. Mosier's No. 1, 640 feet south and 1,440 feet west of NE cor., spudding; J. S. Dewar's No. 2, SW NW SW SW Section 29-28-11, drilling at 110 feet; city of Pawhuska's No. 24, 300 feet from south line and 1,178 feet from east line, NE Section 36-26-8, a location; Peters Petroleum Co. and Norbla Oil Co.'s No. 1, SW cor. Section 15-25-5, location. Carter Oil Co., Bay Oil Co. and Norbla Oil Co.'s No. 2, SW SW SE Section 10-25-6, drilling at 235 feet; Midco Oil Co.'s No. 1, SE SE NW Section 10-25-6, spudding, and same company is building rig for No. 2, SW SE NW Section 10. A. H. Kasishke's No. 2, NE NE SW Section 15-25-6, machine rigged up. R. J. Barrett's No. 1, NW cor. NE Section 30-25-9, location; Producers & Refiners Corp.'s No. 5, 300 feet south and 835 feet east of NW cor. Section 15-24-7, spudding; same company's No. 4, 1,270 feet north and 300 feet east of SW cor. Section 15-24-7, drilling at 690 feet. Kasishke and Lewis Production Co.'s No. 8, C NW SW NE Section 16-24-7, spudding; Lewis Production Co.'s No. 2, NE cor. NW Section 21-24-7, moving in rig; Peters Petroleum and Oliphant's No. 7, C SW Section 32-24-9, spudding at 205 feet.

### Garfield County

In the old Garber Field in Garfield County, Sinclair Prairie Oil Co. deepened No. 15 Hoy from 1,050 feet to Hoy sand at 1,108-21 feet and shot it with 5 quarts. The well pumps 20 bbls. per day and yields 250,000 feet of gas.

### Noble County

Lucien Consolidated's No. 2 Magney, C SE SW Section 17-20-2w, in the Lucien Pool, Noble County, was plugged back to 5,120 feet and given an 80-quart shot at 5,099-5,120 feet. It swabbed 18 bbls. an hour for 12 hours and work of cleaning out was begun.

Lucien Consolidated's No. 2 Wolfe, C NW NW Section 17-20-2w, was plugged back to 5,221 feet and the crew was testing. This well had been drilled to 5,355 feet where it had swabbed 30 bbls. of oil and 600 bbls. of water. The second Wilcox sand was penetrated at 5,220-5,343 feet.

Carter Oil Co. has started drilling No. 2 Weber, C SE SW Section 20-20-2w, and Minnehoma Oil Co. has started drilling No. 2 Shonwald, C NE SE Section 20-20-2w.

### Oklahoma City Field

Helmerich and Payne completed No. 1 Oklahoma City, 880 feet from south line and 60 feet from the east line of SW Section 34-12-3w. It flowed 1,401 bbls. in four hours with gas at the rate of 12,900,000 feet.

Wofford Drilling Co. and Skelly Oil Co.'s No. 1 Military Addition, 620 feet from south line and 200 feet from east line of SW Section 34-12-3w, was put on the gas lift and produced 1,911 bbls. in 13 hours. It was then shut in.

R. A. Wallace and others have taken down the rig for No. 1 Jones, NE Section 15-11-3w.

No new work was started in the field in the past week in review.

### Creek County

C. O. Buckles completed No. 5 Tiger, SE SW SE Section 22-18-8, Olive district, Creek County. It is a 35-bbl. pumper at 1,285-1,302 feet.

F. O. Akin and others' No. 12 Wilson, SE cor. NE Section 34-18-8, was shot with 120 quarts at 1,260-86 feet and it flowed an estimated 100 bbls. in 24 hours.

Marrs and others completed No. 6 Wilson, SW NE SE Section 34-18-8. It was shot with 120 quarts in sand at 1,275-1,302 feet and flowed and swabbed 100 bbls. in 24 hours.

Todd and Willoughby's No. 3 Unallotted, CEL SE NW Section 34-18-8, was completed in sand at 1,270-1,300 feet, which was shot with 90 quarts, the well making 40 bbls. on the swab in 24 hours.

Texas Co.'s No. 2 Haury, NE SW SW Section 35-18-8, had 1,500 feet of oil in the hole from Dutcher sand at 3,063-69 feet.

Doke and Hughes' No. 1 Watson, NE cor. NW Section 10-17-8, was completed. It pumped 25 bbls. initially from sand at 1,280-1,313 feet, shot with 120 quarts.

Ed Smith and others' No. 1-A Renfro, a twin, NE SE NE Section 9-16-9, was dry and abandoned. Layton sand at 1,357-64 feet was barren. Total depth 1,470 feet.

Shamblin and others' No. 1 Indian land, SE SW SE Section 8-14-8, in the Bristow Field, had a hole full of water from Wilcox sand at 3,793-91 feet and was plugging back to Bartlesville sand at 2,815-90 feet, which showed 6,500,000 feet of gas.

New work in Creek County included the following operations: A. B. Ice's No. 1 King, NE cor. SW Section 16-18-8, a machine; Gled Oil Co.'s No. 6 Escoe, CSL SW SE Section 26-18-8, rigging up; Mead Oil Co.'s No. 2 Taylor, NW cor. Section 2-17-8, drilling at 480 feet; Ed Smith and others' No. 4 Tucker, CSL SW SW Section 14-17-8, machine; C. W. Titus' No. 2 R. Watson, NW cor. SE Section 14-17-8, rigging up; A. D. Whitten's No. 1-B Bowlegs, 450 feet north and 150 feet west of SE cor. Section 1-17-9, rigging up; A. S. Bailey's No. 1 Harjo, NE NW NE Section 12-16-9, drilling at 300 feet.

### Tulsa and Wagoner Counties

No completions were reported from the Tulsa or Wagoner County fields during the week. Fred D. Misener has started drilling No. 4 Hodge, CSL NE NW Section 8-17-14, Bixby district, the only new work reported.

### Okmulgee and Muskogee Counties

Bryan Petroleum Co.'s No. 1 Barnett, SW cor. Section 27-16-13, Okmulgee County, is a 9,000,000-foot gasser with 140-pound rock pressure from sand at 1,468-72 feet. It was completed.

Rose and others' No. 3 Jefferson, NW cor. Section 33-15-15, Muskogee County, is a 25-bbl. Booch sand producer at 1,307-18 feet.

R. E. Godfrey abandoned No. 1 Harrod, SE cor. Section 14-15-17. It was a hole full of water from Tyner sand at 1,957-2,017 feet.

J. M. Foltz' No. 2 Patterson, SE NE SW NW Section 8-15-18, made a 10-bbl. pumper from Wilcox sand at 1,604-12 feet.

M. Castleman's No. 10 Thomas, SE NW SW SE Section 23-14-14, Bald Hill Field, Okmulgee County, was abandoned at 590 feet.

Francis Oil Co.'s No. 1-A Ashley, NE SW SE Section 29-14-14, is good for 10

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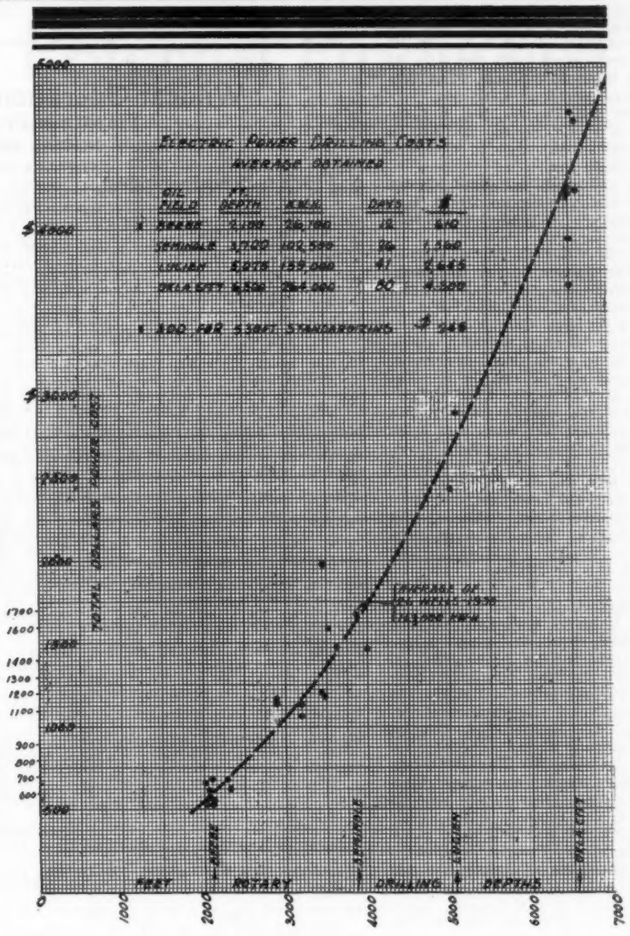


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*Commercial Department*

OKLAHOMA CITY, OKLAHOMA

bbls. in 24 hours after a shot in Booch sand at 1,240-59 feet.

**Greater Seminole Field**

Amerada Petroleum Corp.'s wildcat test north of the Keokuk Falls Pool in Seminole County, No. 1 Parsons, 330 feet north of south line of Lot 7, Section 12-11-6, was drilling at 4,665 feet with 3,800 feet of water in the hole. First Wilcox sand was topped at 4,488 feet.

Helmerich and Payne's No. 1 Lashley-B, NE NW SW Section 25-10-10, is a 35,000,000-foot gas well in Cromwell sand at 3,740-56 feet.

Inglehart and others completed No. 1-A Harjo, SW NE NW Section 20-9-6. It is a 10-bbl. pumper, also producing 120 bbls. of water per day.

Burke Greis Oil Co.'s No. 1 Harper, NE cor. NW Section 15-8-8, was abandoned as dry. It was a hole full of water from Cromwell sand at 3,333-48 feet.

Phillips Petroleum Co.'s No. 2 Richards, SW cor. SE Section 35-7-4, Pottawatomie County, was acidized in dolomite but it pumped only 5 bbls. of oil. The total depth of this well is 4,238 feet.

Winona Oil Co. and Jarvis & Holm's No. 2 Amery, 300 feet south and 1,180 feet east of NW cor. Section 29-7-8, Holdenville area, was completed. It swabbed 50 bbls. per day following a 10-quart shot at 2,780-2,833 feet.

Jones and others' No. 1 Lucas, NW NE NW Section 2-6-4, deepened from 4,135 feet to dolomite at 4,171-4,224 feet, pumped 464 bbls. in 24 hours.

New work in the Seminole area includes the following: Carter Oil Co. and others' No. 1 Jarvis, C E half NE SW Section 18-10-6, Seminole County, a rig; Phillips Petroleum Co.'s No. 1 Stark, C NW NE Section 19-9-5, Seminole County, a rig; Turman Oil and Phillips Petroleum Co.'s No. 1 Carpenter, SW SE NE Section 4-8-5, Pottawatomie County, rig; Fleetborn and Gypsy Oil Co.'s No. 1 Bowlegs, NE cor. SW Section 27-8-8, Hughes County, rigging up rotary; Vivian Oil Co.'s No. 3 Duval, SW SE SE Section 4-7-4, rig; Seminole Supply Co.'s No. 1 Douglas, SW SE NW Section 10-7-4, Pottawatomie County, spudding; Royce and others' No. 6 Walker, SW NE SW Section 22-7-8, Hughes County, drilling at 385 feet; Frank Russell, Inc.'s No. 1 McDaniels, NW cor. SW Section 19-6-4, cellar; Sinclair Prairie, Amerada and Slick-Urschel companies' No. 1 Bruno, NW cor. Section 6-6-5, cellar.

**Pontotoc County**

Denver Producing & Refining Co.'s No. 1 Burke-B, NE SW SE Section 25-5-4, swabbed 65 bbls. from a pay at 2,520-40 feet. Later it was shot with 30 and then 40 quarts of explosive, the result of which was not yet known.

Denver Producing & Refining Co.'s No. 1 Burke-B, NE SW SE Section 25-5-4, was shot with 30 quarts in sand at 2,520-40 feet and with 40 quarts at 2,580-92 feet, total depth. The crew was cleaning out. The well had swabbed 65 bbls. in 24 hours previous to shooting.

Lake Oil Co.'s No. 3 Burke, NW NE SE Section 25-5-4, was deepened to 2,650 feet and shot with 160 quarts at 2,600-48 feet and was being cleaned out.

Moore and others' No. 2 Gray, SW SE NW Section 25-5-4, was completed. It swabbed 780 bbls. of oil and 300 bbls. of water, producing from pay at 2,590-2,636 feet, which had been given a 180-quart shot.

Superior Oil Co. completed No. 1 Boyd, NE NW Section 32-5-5, which had been deepened from 1,743 feet to dolomite at 2,642-87 feet. It was a 45-bbl. initial producer on the pump.

H. & M. Drilling Co. abandoned No. 1 Jones, SE NE Section 25-5-8, at 916 feet. It had no showings.

W. E. McCraw's No. 1 Mayhue, NE cor. Section 19-2-6, was dry and abandoned at 1,871 feet. The hole filled with water at 1,749-76 feet.

W. A. Delaney completed No. 1 Dawes-Hardin, SE cor. NW Section 30-2-7e. It is an 8,500,000-foot gasser at 1,250-95 feet.

W. A. Delaney's No. 1 Hardin, NW cor. Section 30-2-7, tested 167 bbls. in 24 hours flowing by heads. The oil is 41 gravity.

E. H. Moore and Denver Producing & Refining Co. made a location for No. 1 Gray-B, C SE SW NE Section 25-5-4. Michaelson and others were drilling at 275 feet in No. 1 Wallace, NE SE NW Section 29-5-8.

**Southern Fields**

Abe Wallack completed No. 3 McDuffie, SE NE SW Section 2-7s-6e, Marshall County, a 15-bbl. well at 817-28 feet.

Owl Oil Co.'s No. 7 McLendon, NE cor. NW Section 9-3s-5w, Stephens County, was dry and abandoned at 411 feet.

Skelly Oil Co.'s No. 22 Harley, C NE SE NW Section 24-2s-4w, Stephens County, started at 7 bbls. per day at 534-47 feet.

Carter Oil Co.'s No. 1 Krieger, C SW NW SE Section 8-2s-2w, swabbed 75 bbls. in nine hours from a series of sands from 1,474-2,014 feet.

Daphine Oil Co.'s No. 4 Majors, SE cor. Section 25-1s-3w, swabbed 223 bbls. in 24 hours from sand at 2,481-2,601 feet. It was completed.

Carter Oil Co.'s No. 3 Lynn, C NW NE SE Section 31-1s-2w, Carter County, was completed. It swabbed 154 bbls. from sand and lime at 1,860-88 feet and 2,086-2,127 feet.

Centrop Oil Co. has machine in for No. 1 Jenkins, 220 feet from S line and 735 feet from east line of NE Section 17-7s-5w, Jefferson County. Angle and Lundy have rig up for a 3,250-foot test, No. 1-A Ringling, NE SW SW Section 11-5s-1w, Love County. Pace and others were drilling at 35 feet in No. 3 Bristow, SE NE NE Section 29-2s-7w, Stephens County. Wright, Smith and others made a location for No. 1 Moore, SE cor. NE Section 5-1s-3w. Samedan Oil Co. made a location for No. 1 Higgins, NE cor. Section 36-1s-3w. Trowbridge and others are rigging up No. 1 Ratliff, SE NW SW Section 19-1s-2w, Carter County.

## Wildcat Operations in Oklahoma

**Week Ending February 10**

### Northern Oklahoma

**ALFALFA COUNTY**

| Company, farm and location— | Remarks: |
|---|---|
| Acre et al's No. 1 Acre, C SW NE Sec. 14-24-11w | T.D. 6,375 ft. |

**BECKHAM COUNTY**

| | |
|---|---|
| Phillips Pet. Co. and Ramsey's No. 1 Martin, C NW NE Sec. 27-9-23w | T.D. 6,944 ft.; will test. |
| West Oak Gas Co. et al's No. 1 Powell, NW SW Sec. 11-9-25w | Drlg. 2,915 ft. |

**CADDO COUNTY**

| | |
|---|---|
| Denver Prod. & Ref. Co.'s No. 1 Noe, NW SW SW Sec. 34-10-10w | C.O. at 6,000 ft.; T.D. 9,540 ft. |

**COMANCHE COUNTY**

| | |
|---|---|
| Stores et al's No. 1 Crutcher, C NE Sec. 11-1-12w | S.D. 150 ft. |

**DEWEY COUNTY**

| | |
|---|---|
| Continental Oil Co.'s No. 1 Beaumer, SW NE Sec. 8-19-20w | T.D. 3,980 ft.; lost circulation. |

**GARFIELD COUNTY**

| | |
|---|---|
| Stanolind O. & G. Co.'s No. 1 Van, SW NE Sec. 29-21-1w | S.W. 4,949 ft.; drlg. plug. |
| Indian Terr. Illum. Oil Co.'s No. 1 Clark, C NW NW Sec. 34-21-6w | T.D. 6,420 ft.; C.O. |
| Indian Terr. Illum. Oil Co.'s No. 1 Clark, C NW NW Sec. 34-21-6w | T.D. 6,428 ft.; changing rotary. |

**GARVIN COUNTY**

| | |
|---|---|
| Anderson & Kerr's No. 1 Rodke, NW NE NW Sec. 21-4-1w | Set 12-in. csg. 193 ft. |
| Phillips Pet. Co.'s No. 1 Dennis, SE NE Sec. 9-4-1e | Set 15-in. csg. 196 ft. |

**GREER COUNTY**

| | |
|---|---|
| Otis Cosgrove's No. 1 Border, C S½ NE NW Sec. 31-6-22w | Abd. 160 ft. |

**HUGHES COUNTY**

| | |
|---|---|
| Dickison et al's No. 1 Webster, NW NE Sec. 22-10-10 | Rig on ground. |
| J. B. Hill's No. 1-A Perkins, C W½ SW SW Sec. 7-5-9 | Set 8-in. pipe 585 ft. |
| Birk-Kan.'s No. 1 Gardner, NE NW Sec. 22-6-9 | Rig. |
| Olympic Oil Co.'s No. 1 McClasson, SE NW NW Sec. 12-9-8 | Fishing at 600 ft. |
| Scruggs et al's No. 1 Black, NE Sec. 13-9-10 | H.F.W. 2,988-3,010 ft.; S.D. |

**KAY COUNTY**

| | |
|---|---|
| Burton Lewright et al's No. 1 Leseman, SW NE SE Sec. 4-28-2 | Rig. |

**KIOWA COUNTY**

| | |
|---|---|
| Erickson et al's No. 1 Heatherton, NW SW SW Sec. 14-6-16w | S.D. 600 ft. |
| Erickson et al's No. 1 Heidell, SW NE SE Sec. 2-6-16w | Drlg. 490 ft. |

**LINCOLN COUNTY**

| | |
|---|---|
| Amerada Pet. and Stanolind O. & G. Co.'s No. 1 Martinek, NW SE Sec. 35-13-5e | T.D. 4,425 ft.; will D.D. |
| Huckleberry et al's No. 1 Boland, SW cor. Sec. 25-12-3e | Wilcox sand 5,185 ft. |
| I. T. I. O. Co.'s No. 1 Stanley, C SE NE NW Sec. 33-14-3 | Drlg. 1,995 ft. |

**LOGAN COUNTY**

| | |
|---|---|
| Anderson & Kerr's No. 1-A Hull, 455 ft. S, 330 ft. W of E cor. Sec. 11-18-4w | Drlg. 3,400 ft. |
| W. N. Anthony's No. 1 Fruin, SE SW Sec. 4-16-1 | Rig. |
| Amerada and Stanolind's No. 1 Fouts, NW NE Sec. 14-17-1w | T.D. 5,040 ft.; running csg. |
| Barnsdall Oil Co. et al's No. 1 Seyller, NE SE Sec. 12-15-4w | T.D. 6,085 ft.; fishing. |
| Jadeka Dev. Co.'s No. 1 Frakes, C SW NE SW Sec. 16-15-6w | T.D. 2,330 ft.; fishing for tools. |

**MUSKOGEE COUNTY**

| | |
|---|---|
| J. S. Routt et al's No. 1 Escoe, CWL SE NE Sec. 17-13-17 | T.D. 1,200 ft.; S.D. for 10-in. csg. |

**OKLAHOMA COUNTY**

| | |
|---|---|
| Springrose Drlg. Co.'s No. 1 Edwards, C SE SE Sec. 19-11-1 | Drlg. 5,988 ft. |

**PAYNE COUNTY**

| | |
|---|---|
| L. G. Hulse's No. 1 Sloan, SW NW SE Sec. 19-17-3 | P.B. to 1,226 ft.; D.P. stuck. |
| Mid-Continent Pet. Corp.'s No. 1 Swank, SE NE NE Sec. 19-19-2 | Drlg. 4,716 ft. |

**PITTSBURG COUNTY**

| | |
|---|---|
| Moffett & Hall's No. 1 Jones, C NE NW Sec. 14-8-14 | Lost tools; T.D. 3,200 ft.; S.D. |
| Stencil Oil Co.'s No. 1 Chunn, SE NW Sec. 29-4-14 | Rig. |

**PONTOTOC COUNTY**

| | |
|---|---|
| Galbreath's No. 1 Stafford, NE SE SE Sec. 31-2-6 | Drlg. by tools. |
| W. E. McGraw's No. 1 Mayhue, NE Sec. 19-2-6 | H.F.W. 1,749-76 ft.; abd. |
| Stanolind-Amerada's No. 1 Aldridge, C N½ S½ SE Sec. 2-5-7 | T.D. 4,295 ft.; P.B. 2,670 ft. |
| Delaney et al's No. 1 Dawes-Hardin, SE NW Sec. 30-2-7 | Drlg. 1,250 ft. |
| Williams' No. 1 Kroth, NE SE Sec. 23-3-4 | H.F.W. 1,977 ft. |

**POTTAWATOMIE COUNTY**

| | |
|---|---|
| Deep Rock and Margay's No. 2 Adams, NW NE Sec. 11-6-3 | Drlg. 2,500 ft. |
| Atlantic Oil Prod. Co.'s No. 1 School land, C NE NW NW Sec. 36-10-4 | Set whipstock 4,220 ft. |
| Texas Co.'s No. 1 Terfertiller, NW NE Sec. 4-8-3 | T.D. 5,479 ft.; S.D. |

**SEMINOLE COUNTY**

| | |
|---|---|
| John Burns' No. 1-B Shepard, SE NE Sec. 4-8-3 (O. W.D.D.) | T.D. 1,658 ft.; S.D. |
| Carter Oil Co. et al's No. 1 Jarvis, C E½ NE SW Sec. 18-10-6 | Moving in rig. |
| Amerada Pet. Corp.'s No. 1 Parsons, 330 ft. N of S line of Lot 7, Sec. 12-11-6 | Drlg. 4,665 ft. |
| Flemlee et al's No. 1 Bowlegs, SE NE SW Sec. 1-7-7 | S.D. 1,260 ft. |

### Southern Oklahoma

**ATOKA COUNTY**

| | |
|---|---|
| J. D. Boukan's No. 1 Howard, NW SW NW Sec. 20-2s-10e | Drlg. 1,135 ft. |
| Brookshire et al's No. 1 Rowland, NW NE NE Sec. 18-3s-10e | C.O. 3,443 ft. |

**CARTER COUNTY**

| | |
|---|---|
| Angle & Lundy's No. 1-A Ringling, NE SW SW Sec. 11-5s-1w | Rig up. |
| Kilgore et al's No. 1 Williams, SE NW SW Sec. 20-1s-3w | S.D. 2,190 ft. |

**GARVIN COUNTY**

| | |
|---|---|
| National Prod. Co.'s No. 1 Littrell, NE cor. Sec. 31-2s-3w | S.D. 299 ft. |

**JEFFERSON COUNTY**

| | |
|---|---|
| Keil & Wiley's No. 2 O. W. Seay, SW NW NW SW Sec. 35-6s-5w | Dry and abd. 1,680 ft. |

**MURRAY COUNTY**

| | |
|---|---|
| A. E. Harden's No. 1 Sadler, NE Sec. 19-1-3 | Rig. |
| T. E. Revells et al's No. 1 Wolfe, NE cor. Sec. 19-1-2 | Running 8-in. pipe; T.D. 1,500 ft. |
| F. E. Revells' No. 1 Wolfe, NE cor. Sec. 18-1n-2e | T.D. 2,090 ft.; csg. frozen at 2,-560 ft. |

**PUSHMATAHA COUNTY**

| | |
|---|---|
| J. V. Scrivener et al's No. 1 Swink, C NE SE Sec. 29-4s-20e | Setting csg. 410 ft. |
| Whitehead et al's No. 1 Messer, SE SW SW Sec. 35-3s-13e | T.D. 2,495 ft.; S.D. |

**STEPHENS COUNTY**

| | |
|---|---|
| J. W. Madison's No. 1 Tussey, SW SE NW Sec. 24-1n-4w | S.D. 3,210 ft. |
| MacMo Oil Co.'s No. 1 Butler, SW NW SE Sec. 36-2s-7w | S.D. 20 ft. |

**TILLMAN COUNTY**

| | |
|---|---|
| J. H. Everett's No. 1 Crane, SW cor. Sec. 15-3s-14w | Rig. |

**REGIONAL PIPE LINE COMMITTEE**

Members of Group 3 regional subcommittee on pipe lines of the central committee on standard procedure for measuring, sampling and testing crude oil for 1934 have been appointed by Charles F. Roeser, chairman of the general committee of the American Petroleum Institute's Division of Production. The committee is headed by E. L. Adams, General Petroleum Corp., Los Angeles, as national chairman. Regional committeemen and chairmen are as follows:

Eastern district: D. S. Bushnell, Northern Group of Pipe Lines, New York, chairman; W. J. Brundred, Brundred Oil Corp., Oil City; P. H. Curry, South Penn Oil Co., Pittsburgh.

Mid-Continent district (Oklahoma-Kansas): C. R. Weidner, Sinclair Prairie Pipe Line Co., Independence, chairman; J. G. Dyer, Continental Pipe Line Co., Ponca City; Fred K. Haskell, Empire Pipe Lines, Bartlesville; R. S. Knappen, Gypsy Oil Co., Tulsa; Bert Martin, Stanolind Pipe Line Co., Tulsa.

Rocky Mountain district: G. M. Vandaveer, Stanolind Pipe Line Co., Casper, chairman; P. W. Hennessy, Illinois Pipe Line Co., Casper; L. F. J. Wilking, Texas Co., Casper.

Southwestern district (Texas-Louisiana-Arkansas): T. J. McMahon, Texas Pipe Line Co., Houston, chairman; T. J. Fitch, Magnolia Pipe Line Co., Dallas; Charles Fitzgerald, Sinclair Prairie Pipe Line Co. of Texas, Fort Worth; R. W. Howe, Atlantic Pipe Line Co., Dallas; E. C. Kincade, Gulf Pipe Line Co., Houston; F. Ray McGrew, Standard Pipe Line Co. of Louisiana, Shreveport; J. A. Neath, Humble Pipe Line Co., Houston.

California district: E. L. Adams, General Petroleum Corp., Los Angeles, chairman; O. O. Allen, standard Oil Co. of California, La Mirada; F. E. Coyle, Associated Oil Co., Wilmington; C. E. Emmons, Texas Co., Los Angeles; A. H. B. Gore, Richfield Oil Co., Los Angeles; William Groundwater, Union Oil Co., Los Angeles, and F. B. Sims, Shell Oil Co., Los Angeles.

**MRS. LUCINDA PHILLIPS DIES**

Mrs. Lucinda Josephine Phillips, 84, died at her home in Gravity, Iowa, February 8. She was the mother of Frank and L. E. Phillips of Bartlesville, Okla.; Waite Phillips of Tulsa; Fred Phillips of Tulsa, Mrs. Johnson D. Hill of Tulsa, Ed Phillips of Okmulgee, Mrs. R. W. Coan of Des Moines, Iowa, and Mrs. Ray Walker of Gravity.

# Five Porter Township Wells Add 7,000 Barrels to Michigan's Daily Potential Production

By PAUL A. ELLIOTT
Staff Correspondent, Michigan Fields

MUSKEGON, Mich., Feb. 12.—Notwithstanding drastic curtailment of Michigan production by a proration schedule allowing runs of only 2 per cent of potential over an exemption of 100 bbls. per well, five new Porter Township, Midland County, wells were drilled into the Dundee pay sands, adding about 7,000 bbls. of new daily potential.

The new wells brought in since February 1 will boost the daily potential in Michigan over 125,000 bbls., compared with a Federal allowable of 29,000 bbls. definitely announced as Michigan's allotment for the first three months of 1934.

Administrator Harold L. Ickes confirmed his original announcement granting Michigan an allowable of only 29,000 bbls. daily notwithstanding a visit by a delegation of Michigan producers and officials of the Oil and Gas Association of Michigan who recently sought an increased allowable on the basis of Michigan consumption of petroleum products requiring 50 to 75,000 bbls. a day of crude oil.

The Michigan potential reached 119,346 bbls. a day as of February 1, compared with prorated daily runs of 28,887 bbls., or slightly less than the State's allowable, it was reported by O. H. White and A. J. Weideman, proration committee umpires. This is an increase of more than 14,000 bbls. a day potential and 121 bbls. a day in allowable runs over totals of 105,127 bbls. potential and 28,766 bbls. daily runs for the previous month.

### Number of Producing Wells Increases

The number of producing wells also was increased from 822 on January 1 to 854 as of February 1. Totals for the 11 producing areas in the State during January and February are shown in the accompanying table.

These figures indicate an increase of about 15,000 bbls. daily potential in the flush Porter Pool and no large decline in any old or new pools during January. About 22 per cent of the State's potential may be run in February including the minimum of 100 bbls. a well and 3,200 bbls. daily under-runs of the past month.

### New Completions

The largest completion of the last week was the Pure Oil Co.'s No. 3-A J. H. Miller, NW NE SW Section 17-13n-1w, Porter Township, Midland County, which came in for an initial of 275 bbls. an hour, or at the rate of 6,000 bbls. per day, in the Dundee pay sands.

The new Miller well, largest in this particular part of Section 17, was shut in after the first hour's flow for the 15-day shutdown period when a more accurate gauge will be available.

Four other comparatively small producers also were completed in the Dundee pay sands in Porter Township. The Pure's No. 4 A. C. Wyant, NW SW SW Section 12, topped the limestone at 3,369 feet and hit the Dundee pay sand at 3,390 feet, or 21 feet in. It was rated at 200 bbls. initial after drilling below 3,400 feet.

Stork Oil Co.'s No. 2 James Hill, NE SW NE Section 22, drilled into the pay sands two weeks ago, made about 100 bbls. a day after acid treatment.

The Theodore Oil Co.'s No. 4 J. W. Campbell, NW SE NW Section 17, topped the Dundee at 3,375 feet and struck the pay sand at about 3,410 feet for an initial flow of about 60 bbls. a day.

NUMBER OF PRODUCING WELLS IN MICHIGAN AREAS

| Pool— | January | | | February | | |
|---|---|---|---|---|---|---|
| | Wells | Potential | Runs | Wells | Potential | Runs |
| Porter | 108 | 91,479 | 17,765 | 130 | 106,392 | 18,029 |
| Yost-Jasper | 9 | 1,686 | 479 | 10 | 1,746 | 790 |
| Chippewa-Greendale | 317 | 5,310 | 5,310 | 319 | 5,407 | 5,407 |
| Vernon | 36 | 3,588 | 3,143 | 38 | 3,265 | 2,557 |
| Leaton | 19 | 893 | 760 | 19 | 834 | 722 |
| Muskegon | 179 | 507 | 507 | 183 | 517 | 517 |
| Oceana | 12 | 575 | 360 | 13 | 450 | 402 |
| Ogemaw | 4 | 840 | 193 | 4 | 518 | 246 |
| Saginaw | 136 | 138 | 138 | 136 | 137 | 137 |
| Montcalm | 1 | 108 | 108 | 1 | 77 | 77 |
| Cass | 1 | 3 | 3 | 1 | 3 | 3 |
| Total | 822 | 105,127 | 28,766 | 854 | 119,346 | 28,887 |

Gordon Oil Co.'s No. 4 Muscott, NE NW NE Section 17, topped the Dundee at 3,397 feet and was good for about 50 bbls. initial when drilled into the pay sands. It may be deepened.

The Bradner-Vaughan Development Co.'s No. 1 Farmers State Bank, SW NE SW Section 9, which failed to flow when drilled in two weeks ago, also failed to respond to its first acid treatment so will be given another dose.

Stork Oil Co.'s No. 3 Jesse B. Richmond, SW NW SW Section 22, was drilling into the Dundee as the week closed. Five other tests near the Dundee include J. W. Campbell and Vera Nunn's No. 1 H. W. Fordney, NW SW SE Section 18; Gordon Oil Co.'s No. 2 Teater-Baxter, NW SW NW Section 22; J. S. Braden's No. 1 J. T. McCallum, NE SE SE Section 20; W. J. Wilson's No. 2 Hathaway, NE NE NW Section 18, all in Porter Township, and Branigar, Giffert and Reasor's No. 1 Fred and Hattie B. Sias, SE NW SE Section 8-14n-2w, Greendale Township, Midland County.

C. W. Teater's No. 4 and No. 6 J. M. Wale wells, the former NE NE NW Section 22 and the latter SW NE NW Section 22, also are drilling on top of the Dundee. The former topped the Dundee at 3,363 feet and the latter at about the same depth.

M. D. and R. A. Wells' No. 1 Joseph H. Otway, SE SE SW Section 22, also was nearing the Dundee drilling below 3,350 feet.

### Ogemaw County

An important new show of oil was encountered in the Dundee pay sands in Dr. C. L. Hess' No. 1 Fisk Brothers, SE SW SW Section 27-22n-2e, West Branch Township, Ogemaw County, at about 2,547 feet after it had been unsuccessful in the upper Traverse. It had not yet developed commercial production in the Dundee, however, as the week closed.

Pure Oil Co.'s No. 1 William T. Yeo, drilled to a depth of about 5,200 feet on a location 2 miles southeast of the No. 1 Fisk Brothers about two years ago, struck shows of oil and gas in the Traverse, Monroe and Sylvania, but was plugged and abandoned.

### Mecosta County

J. M. Taggart and others were having trouble in completing their No. 5 on the M. E. Darrah lease, C SE NE Section 5-14n-9w, Austin Township, Mecosta County, with a bit in the hole beneath a string of casing smaller than the bit and less than 20 feet yet to drill to reach the Michigan gas sands.

As the immediate starting of a 55-mile pipe line to Muskegon depends upon successful completion of this well as a gasser, drillers are attempting to drill ahead and save the hole.

### Oceana Field

Renewed interest was aroused in the Oceana Field by reports of the increased production of H. C. Nelson's No. 1 Myrtle Spitler, recognized as one of the best producers in the active western Michigan area. Several additional field tanks have been erected on the Spitler lease, located SW SW NW Section 31-15n-16w, Elbridge Township, east of the Hart Township group of wells.

A rig has been moved in and drilling operations started on the Viola Smith lease, SE NE NE Section 36-15n-17w, Hart Township, H. C. Nelson's offset to John B. Northcott's new well recently started on the Jane Pinder lease, formerly held by the Reed Oil Co. and located NW NW Section 31, Elbridge Township, about two locations north of the No. 1 Spitler. Permit for the Viola Smith well was issued a few days ago.

Possible production of two wells recently drilled into the upper Traverse formation and treated with acid has not yet been determined. They are James E. Flanagan's No. 1 Clifford Garnett, SE SE Section 36, Hart Township, and H. C. Nelson's No. 1 Noyell, NW SE Section 36, same township.

Two other wells active in or near the proved field are Mr. Flanagan's No. 1 Frank Mast, NW NW Section 36, Hart Township, and Mr. Nelson's No. 2 Anna Copenhaver, SW SE Section 36, same township.

Two wildcats also are drilling, one in Ferry Township and the other in Weare Township, near Pentwater, the latter testing the Dundee after failure in the upper Traverse.

### Muskegon Field

Muskegon Development Co. is completing a new Monroe gas well in Section 8, Muskegon Township, with a natural flow of about 100,000 feet a day expected to be more than doubled with a shot. The new well is the No. 1 Charles E. Myler, SW SW Section 8-10n-16w, Muskegon Township, originally a 6,000,000-foot gasser in the Dundee formation at a depth of 2,047 feet. It was deepened to a total of 2,253 feet during the past 10 days striking Monroe gas recently at 2,237 feet. It is near the No. 3 John B. Nichols, recently brought in for a Monroe open flow of 700,000 feet a day. Shoup Oil & Gas Co.'s No. 3 George H.

# Increasing Gas Development Reported In Progress in Central Ohio District

BY GEORGE A. WHITNEY
Staff Correspondent, Central West Fields

FINDLAY, Ohio, Feb. 12.—Central Ohio as usual has the largest development in the Central West Field. Central Ohio has taken the place of the Lima Field as the most productive gas area in the Ohio fields. In Lucas County John Dillinger's No. 2 on the Dan Knauss farm, in Monclova Township, has been shut down at 660 feet. Montgomery and others' No. 2 on the H. F. Hetrick, in Rice Township, Sandusky County, is shut down at 2,110 feet. In Woodville Township C. H. Benke's No. 1 on his own farm, is shut down on top the Trenton lime at 1,220 feet.

In Wyandot County, Jones and Coyle are shut down at 1,457 feet on the Edith Swerline farm, Section 21, Tymochtee Township. Hanson and others' No. 1 on the John Culver farm, Section 28, Crane Township, is drilling at 1,275 feet. U. & M. Gas Co. is drilling No. 1 on the Dewey M. Failer farm, Section 21, same township. Robert Kirk and others are shut down at No. 1 on the Joseph Coutard farm, Section 27, same township, at 1,400 feet. Upper Sandusky Oil & Gas Co.'s No. 2 on the Scott and Ella Hildebrandt farm, NW Section 33, Crane Township, is a gas well. Cessna & Feasel are shut down at 1,485 feet on the Thomas Bowman farm, Section 15, Pitt Township.

Ohio Oil Co. is starting a test on the Burton Sanderson farm, Section 30, Jackson Township, Van Wert County, in the area where the 80-bbl. producer was found on the Arthur Reed farm, by Hystanton Oil & Gas Co., a week or so ago.

### CENTRAL OHIO

Ten completions were reported from the Central Ohio Field, of which two were oil wells with an initial of 180 bbls., two dry holes and six gas wells. The best oil well was Preston Oil Co.'s No. 1,532 on the Sunday Creek Coal Co.'s property, in Hocking County, with an initial of 120 bbls. at a total depth of 3,538 feet. The other oil well is Murphy Oil Co.'s No. 3 on the Ward Little farm, Section 17, Perry Township, Coshocton County, with an initial of 60 bbls.

In Lorain County, Ohio Fuel Gas Co. drilled a gas well on the Elmer Alexander farm, in Lot 86, Eaton Township. Same company drilled in a gas well in No. 2 on the Abner Price farm, in Meigs County.

In Stark County, Brendel Producing Co.'s No. 1 on the Peter G. Graber farm, Section 12, Plain Township, is a gas well. Same company is drilling No. 1 on the Bell Terre allotment, Section 10, same township. Same company is drilling below 4,000 feet in No. 2 on the Samuel Willaman farm, Section 10, same township, and is below 1,500 feet in No. 3 on the Canton Suburban Realty Co.'s property, Section 20.

(Continued on Page 69)

Shoup, located across the M-20 pavement from the No. 1 Myler gas well, also will be deepened to the Monroe for gas.

Muskegon Oil Corp.'s No. 1 William Vandermade, SW SE Section 26-10n-15w, Egelston Township, a new Muskegon County wildcat, is drilling at about 1,400 feet after passing through the red rock indicator formation. It will be drilled at least to the upper Traverse limestone, it was announced by Stanley Daniloff, president.

Joseph Murlin and others are expected to start a new well in the southeastern section of the Muskegon Township Field on the George Orth lease, SE NW NW Section 22-10n-16w, near their No. 1 Anna Ross, recently brought in with an initial flow of about 100 bbls. a day from the upper Traverse.

### Vernon Township

Six Vernon Township, Isabella County, projects were nearing the Dundee with prospects of completion this week: National Petroleum Co.'s No. 1 Harry Wild, SE SE NW Section 21-16n-4w; Mellon-Pollock Oil Co.'s No. 3 George S. House, N NW Section 26; Templemayr & Tope's No. 2 Woods, SW SW NW Section 22, and same company's No. 3 Russell, NW SW NW Section 21; Mammoth Petroleum Corp.'s No. 2 Marceilles, Section 23, and V. M. Voorhees' No. 1 Brief, Section 22.

W. J. Bernier's No. 1 Flood, NE NE SW Section 9, a Vernon Township wildcat, resumed drilling operations after being shut down several weeks on top of the Dundee at 3,730 feet.

### Mount Pleasant Area Wildcats

McClanahan Oil Co.'s No. 1 Brooks, SW SW SE Section 11, is expected to be the first of several wildcat tests in and near Midland County to be completed in the Dundee. It was drililng at about 3,300 feet.

Two wildcats in Lee Township and two in Jasper Township, Midland County, with one each in Lincoln and Ingersoll Townships, comprise the other active projects in this section.

### Saginaw County

A third Saginaw County wildcat being drilled in the hope of extending the Porter Pool southeastward was abandoned with the unsuccessful completion of Alex Jeffrey's No. 1 Hubbell, in Section 7, Fremont Township, at a total depth of 3,263 feet, where bottom water was encountered.

Two other Saginaw tests recently abandoned were Hayden & Townsend's No. 1 Patrick Foy, Section 16, Richland Township and J. E. Spillane's No. 1 Russell, Section 24, Jonesfield Township.

### Arenac County

Two Arenac County wildcats located about 35 miles southeast of the West Branch Field in Ogemaw County are drilling in the upper Traverse. They are Lupher Drilling Co.'s No. 1 Dudley-Lockhardt, SE SE NE Section 25-19n-5e, Mason Township, about 1,900 feet deep, and Maynard L. Smith's No. 1 Gilbert Proulx, NW SW NE Section 12-19n-6e, Au Gres Township.

### New Permits

Eight new permits for wells to be drilled in five different areas were issued during the past week by the oil and gas division of the Michigan conservation department.

Three were for Porter Township, Midland County, as follows: Pure Oil Co.'s No. 1 A. J. Neitzke, NW NW SW Section 21-13n-1w; same company's No. 4 Walter Neitzke, SW NE SE Section 21, and Richard Hall's No. 1 Harris Bond, SE NW SE Section 7.

Two for West Branch Township, Ogemaw County, were: Theodore Oil Co.'s No. 2 Ogemaw Country Club, SE SE SW Section 20-22n-2e, and the same company's No. 3 Ogemaw Country Club, NW SW SE Section 20.

The others were John F. Melvin and Elmer E. Brehm's No. 1 Benjamin F. Jones and Fred E. Whitaker, NW SW SE Section 19-15n-2w, Geneva Township, Midland County; H. C. Nelson's No. 1 Viola Smith, SE NE NE Section 36-15n-17w, Hart Township, Oceana County, and Pure Oil Co.'s No. 1 Alfred E. Skerritt, C SW NE Section 5-14n-6w, Broomfield Township, Isabella County.

Forty-two permits were issued last month compared with 20 in January, 1933. There were 43 completions in the first month of this year compared with 12 in the corresponding month of 1933. Twenty-seven were oil wells with a combined initial production of more than 15,000 bbls. Six were gas wells with a combined open flow capacity of more than 40,000,000 feet a day. Ten were dry holes. This compares with a 1933 record of eight oil wells with an aggregate of 1,489 bbls. initial, two gas wells, making 750,000 feet a day and two dry holes.

### Stripper Areas

James C. Graves, chairman of the Michigan regulatory committee, and A. E. Faine of New Straitsville, Ohio, member of the regional committee, went to Washington last week to attend a general meeting to discuss labor rates under the code and a definition of stripper wells. Michigan producers are particularly interested in a definition of stripper wells.

At a recent meeting of the regional code committee attended by Mr. Graves and Howard D. Atha, president of the Oil and Gas Producers Association of Michigan, four and possibly five older fields in Michigan were designated as stripper areas and thus not subject to proration. They include: Chippewa-Greendale, Muskegon, Saginaw, Leaton and possibly Vernon Township fields.

Porter Township and several new fields are subject to proration and not listed as stripper areas.

The lands division of the Michigan conservation department has been authorized by the state commission to advertise for leasing about 2,000 acres of state land in Isabella, Mecosta, Midland and Osceola Counties, all in what is termed wildcat territory.

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# Ten Wells Completed in Eastern Fields; Southwestern Pennsylvania Runs Up

BY STAFF CORRESPONDENT

PITTSBURGH, Pa., Feb. 12.—In the lower eastern fields work has been delayed by the cold weather although it made possible the hauling of materials over roads which had been impassable.

There is no change in the Pennsylvania Grade crude oil situation. Present production is insufficient to meet present demand and, except in Southwest Pennsylvania, runs are declining. In Southwest Pennsylvania, runs from wells increased due to two fair wells in East Findley Township, Washington County. It is estimated that refinery demand exceeds production by over 2,000 bbls. a day.

During the week 10 wells were completed of which four were gas wells, none large, and six were producers with an initial production of only 26 bbls. There were also five dry holes.

### SOUTHEAST OHIO

Three producers, one gas well and four dry holes were reported from Southeast Ohio during the week. In Jefferson County Mount Tabor Oil Co. completed No. 3 on the Thomas Mills farm in the southwest quarter of Section 17, Island Creek Township. It was completed in the Berea sand, depth 1,300 feet, and is a 1½-bbl. pumper after shot. It is 600 feet west of the No. 2, same farm.

In Licking County, Wehrle Co. drilled deeper No. 7 on the Frank Darnes farm, Lot 13, Madison Township, from the Berea sand down to the Clinton sand, a depth of 2,744 feet. It proved dry in the deeper sands and had been a producer in the Berea.

In Monroe County, Homer Newhart an others completed No. 3 on the Homer Burkhart farm, Section 5, Bethel Township, in the Keener sand at a depth of 1,455 feet. It is showing for a small gas well, gauging about 80,000 feet of gas a day. In Seneca Township, E. G. Cunningham and others drilled a test on the Ora and George Reed farm in Section 19 through the Berea grit to a total depth of 1,755 feet. It was a dry hole.

In Washington County there were two producers and two dry holes. In Wesley Township, W. S. Harris completed a test on the Elmer Dills farm, in the southeast quarter of Section 3, in the Maxon sand at 1,200 feet. It produced 5 bbls. a day, natural. In the same township, but the eastern part of Lot 1,103, Helen J. Burt completed No. 18 on the Robert A. Graham farm in the shallow Mercer sand. It is a 1-bbl. pumper after shot. In the southwest corner of Section 31, same township, Goddard and Blosser drilled No. 3 on the Joshua Morris farm through the Keener sand to a depth of 1,200 feet. It was a dry hole. In the northeast quarter of Section 2, same township, Chistmar Oil & Gas Co. drilled a test on the Zanesville Canal Co. lease through the Maxon sand and it was dry.

### WEST VIRGINIA

There were three producers in West Virginia. In Calhoun County, R. Fowler and others completed a test on the Lafayette Stump farm in Sherman district in the Injun sand at 2,198 feet. It is showing for about 3 bbls. a day with a showing of gas after shot.

In Gilmer County Mountain Iron & Supply Co. completed drilling deeper No. 1 on the A. H. Stump farm in Center district from the Maxon sand down to the Berea sand at 2,326 feet. It is showing for 10 bbls. a day after shot. On Tract Fork in DeKalb district, Charles F. Despard and others completed a test on the Clyde Amos and others lease, mapped as the M. L. Amos, in the Injun sand and it is producing 5 bbls. a day. In this district, the well completed and reported last week on the Ware and Webster farm, No. 3, by A. E. Ellis and others, is now also making about 400,000 feet of gas along with the oil.

### Gas Wells

Two small gas wells were reported in Gilmer County. In DaKalb district, Hope Natural Gas Co. drilled deeper No. 6,065 on the F. B. Reynolds farm to a total depth of 2,144 feet. It will make a small gas well from that formation. In this district and on Tanner Creek, Pittsburgh & West Virginia Gas Co. completed drilling deeper No. 7,574, on the Quimby K. Kelly farm and it is a light gas well in the Injun sand at 1,914 feet. In Center district, Chartiers Oil Co. completed drilling deeper No. 8 on the Baptist Home Missionary lot and found the Berea sand dry as well as all formations below the Injun sand. The Injun sand showed about 75,000 feet of gas a day. The total depth was 2,476 feet.

In Ritchie County, Kelley and Musser completed a test on the Mace Welch farm on Grass Run in Murphy district in the Injun sand at a depth of 1,485 feet. It will make a light gas well and had no showing of oil in any of the sands.

### Drilling in West Virginia

At the present time there is only one well drilling in Lost Run Pool, Clay district, Ritchie County. Additional work in that pool has been held back on account of the difficulty of getting in materials. The well drilling is No. 5 of Clifton Louden and others on the S. E. Satterfield farm which is down 985 feet. In this district but outside of the pool, Carnegia Natural Gas Co. is drilling No. 3 on the M. H. Jones farm and has reached 500 feet. In Murphy district, Four Point Gas Co. is down 1,707 feet on the J. T. Johnson farm. Clem Morris is drilling at 1,187 feet on the F. B. Strother farm. King Knob Oil Co. has completed a rig on the Emma V. Weinrick farm. In Grant district Petroleum Producing Co. has started drilling on the Jennie Carroll farm. P. O. Burgey has been granted a permit on the Bertie and J. W. Barker farm.

In Pleasants County, Ross Boner and others are drilling at 960 feet on the Daniel J. Locke farm in McKim district. In Wirt County, R. C. Wagner has started drilling a second test on the M. Richter farm in Burning Springs district.

In Kanawha County, Ten Mile Oil & Gas Co. has been granted a permit on the H. C. Dickinson farm in Malden district. In Cabin Creek district Godfrey L. Cabot has abandoned his location on the Arabella D. Huntington farm. In Big Sandy district, Columbian Carbon Co. is shut down at 1,883 feet in No. 12 on the Queen Land Co. lease and is testing the gas in the Keener sand. H. H. Osborne started No. 4 on the Goshorn and others lease and shut down at 350 feet for water. In Elk district, Valley Gas Co. is drilling at 950 feet on the G. W. Harless farm.

In Wayne County, Transylvania Petroleum Co. has started drilling on the William E. Jones farm in Stonewall district. In Putnam County, Reishman Oil & Gas Co. has been granted a permit on the H. S. Mansfield farm, Scott district.

In Wetzel County, Wiser Oil Co. is drilling on the Mary E. Yoho farm in Proctor district. In Marshall County, Guy B. and A. B. Patterson are hauling in the materials for No. 3 on the C. and A. B. Williams farm in Liberty district.

In Roane County, H. H. Parson and C. C. Chavengen have a permit on the Mary L. Taylor farm in Geary district. In this district, Frank Finley is drilling by the tools on the W. H. Smith farm. The tools were lost at 1,675 feet. Godfrey L. Cabot is down 950 feet in a second test on the G. W. Truman farm. In Spencer district, D. S. Fisher and others are down 1,550 feet in a second test on the Stella V. Knotts farm and George E. Smith has reached 300 feet on the L. A. Short farm. In Curtis district, W. B. Heeter is drilling at 1,500 feet on the Maude Knopp and others lease and Henderson Oil Co. has reached 1,620 feet in a second test on the F. L. Ball farm. In Smithfield district, Ohio Valley Gas Corp. is down 1,775 feet on the Josephine Young farm.

In Calhoun County, C. B. Lewis is building a rig on the Virgil Hickman farm in Sherman district. W. H. Bickel has reached 1,800 feet on the Luverna Barr farm. F. F. McIntosh is down 1,745 feet in No. 3 on the O. S. Bennett farm. In Lee district he is drilling at 700 feet in No. 4 on the Mary E. Hays farm. Litt Oil & Gas Co. is drilling on top of the Injun sand on the J. S. Wade farm.

In Gilmer County, Everett Starcher and G. A. Richards have been granted a permit on the McQuane heirs farm in DeKalb district. In Upshur County, the French Creek Oil & Gas Co. has a permit on the R. A. Cunningham farm in Meade district.

### SOUTHWEST PENNSYLVANIA

There were no completions in Southwest Pennsylvania. One test proved dry, No. 1 of C. Ferguson & Co. on the Pittsburgh Coal Co. property in Hanover district and was drilled to a depth of 949 feet.

Two sections in this district are active, East Findley Township and Amwell Township, Washington County. In the former, the two wells, No. 1 Clutter and No. 1 Sproul are making about 150 and 70 bbls. a day respectively. Though dry in the Gordon Stray sand, the productive formation, Natural Gas Co. of West Virginia is continuing to drill deeper its No. 1 on the Sarah Carter farm and it is now at 2,770 feet. Its No. 3 on this farm, offsetting the Clutter farm well, is drilling at 1,260 feet. One mile south

of East Findley, the same company is starting drilling on the Harley Ealy farm. Additional locations are expected to be reported soon in this district which has the appearance of an extension of a pool.

In Amwell Township, Washington County, Carnegie Natural Gas Co. is down 2,310 feet in drilling deeper No. 1 on the Fred Baumberger farm. On the John C. Murphy farm, its No. 1 is drilling at 2,931 feet. The Gordon sand was at 2,906 feet with gas showing at 2,914-15 feet. The volume was 213,000 feet, which later blew down to 143,000 feet. On the C. W. Dunn farm, its test is drilling at 2,450 feet. On the C. A. Niles farm Manufacturers Light & Heat Co. has reached 2,350 feet. Wise Oil & Gas Co. is drilling at 1,850 feet on the Eliza Roach farm.

In South Franklin Township, Washington County, Manufacturers Light & Heat Co. is rigging up for a second test on the Howard Clarke farm. In this township, Frank K. Fawcett and others are drilling at 1,433 feet on the Frank Caton farm. The Big Dunkard sand was at 1,220-87 feet with a showing of about 1 bbl. a day along with considerable water.

In Allegheny County, North Versailles Township, McVey and others are down 1,060 feet on the James Shaw farm.

## Central West Fields

(Continued from Page 67)

In Belmont County, Short Brothers' test on the G. A. Nichols farm, Section 15, Union Township, is a dry hole in the Maxon sand at 1,088 feet. Wood and others have abandoned location for No. 2 on the Walter Rudolph farm, Section 35, same township.

In Guernsey County, J. T. Roach has a gas well in No. 4 on the Jennie Rose farm, Section 20, Wheeling Township, in the Berea sand at 1,462 feet. C. C. Wharton's No. 1 on the Ella B. Simms farm, Section 11, Adams Township, found a light gas volume at 600 feet, and abandoned the hole. Wilber Keith's test on the Clyde V. Foraker farm, Section 20 Willis Township, same county, is a gas well in the Berea sand at 1,448 feet.

Wilcox and others are drilling on the W. A. McFetridge farm, Section 1, Richland Township, Belmont County, and Robert Morgan and others are drilling on the F. A. Magee farm, Section 20, same township.

D. W. Hunt and others are shut down at 580 feet on the Lessen B. Zimmerly farm, Section 21, Perry Township, Tuscarawas County. J. H. Harper has been delayed in his test on the Oscar Kohler farm, Section 22, Jefferson Township, same county, by a fishing job.

J. E. Ringler abandoned his small gas well on the W. O. Hartman farm, Section 27, Fitchville Township, Huron County, owing to water.

Hulse-Kuntz, Inc., is drilling No. 2 on the Charles M. Dawson farm, Section 17, Perry Township, Coshocton County.

Ohio Fuel Gas Co. is drilling No. 1 on the J. Wintermyer farm, Section 14, Monroe Township, Knox County. H. E. Perkins is drilling No. 1 on the Carl Tucker farm, Section 13, same township.

In Licking County, Settles Oil Co. has abandoned its location for No. 8 on the George W. Smith farm, Section 18, Perry Township, and Ridgeway and others are drilling No. 3 on the Bessie Hoyt farm, Section 17. Wehrle Gas Co.'s No. 7 on the Jennie Darnes farm, in the third-quarter, of Madison Township, is a dry hole at a total depth of 3,713 feet. Same company's No. 2 on the Thomas Smith farm, Section 1, Franklin Township, is a gas well from 841 to 853 feet.

Pure Oil Co. is starting a test on the Elva Gardner farm, Section 22, Brush Creek Township, Muskingum County. Wiser Oil Co. is drilling No. 2 on the Dayton A. Doyle farm, Section 5, Springfield Township. Summitt County.

Ohio Fuel Gas Co. is drilling No. 1-5,759 on the John Johnson farm, Section 20, Willis Township, Guernsey County, and has made a location for No. 2-5,780 on the same farm.

East Ohio Gas Co. is drilling below 4,350 feet in No. 1 on the Goldsmith farm, Section 14, Plain Township, Stark County. Same company is drilling No. 2 Charles Pontius farm, Section 16, same township, below 3,000 feet, and is spudding on the Canton Cemetery Association's property, Section 20, same township. Brendel Producing Co. is drilling below 4,000 feet in No. 2 on the Samuel Willaman farm, Section 10, Jackson Township, Stark County.

National Tube Co. is drilling below 3,800 feet on its own property, in Lot 66, Sheffield Township, Lorain County. Upham Gas Co. is drilling below 2,100 feet in No. 1 on the J. C. Armstrong farm, Section 7, Brown Township, Knox County. East Ohio Gas Co. has a rig for No. 7 on the S. H. Sterling farm, Section 27, Hardy Township, Holmes County. White and others are rigging up on the James M. Synder farm, Section 23, Perry Township, Stark County.

### INDIANA

Indiana shows more drilling activity. In Sullivan County Dome Gas Co. drilled in a test on the Flora Jewell farm, in Section 32, Curry Township, at a depth of 560 feet, and a test by the same company on the Lando Martz farm, same section, had a nice gas volume at a total depth of 561 feet. Drillers & Producers, Inc., is drilling on the Ellery Hayden farm, in Section 10, Turman Township, same county.

In Pike County, Wiser Oil Co.'s No. 2 on the Stewart Brothers farm, Section 34, Clay Township, was dry at 1,370 feet.

In Perry County, Bankable Oil Co.'s No. 5 on the John Leclire farm, Section 30, Clark Township, had an initial of 60 bbls. Same company's test on the John Flamion farm, Section 22, Oil Township, was dry at 552 feet.

In Hendrick County, Clayton Oil Co., struck a dry hole on the G. T. Underwood farm, Section 28, Liberty Township at 20 feet in the Trenton lime formation.

In Hancock County, J. H. Snider is drilling on the Richard Milburn farm, Section 17, Brandywine Township.

In Madison County, Pendleton Natural Gas Co.'s test on the W. V. Mort farm, Section 4, Fall Creek Township, is a gas well at 905 feet and its test on the John Sisson farm, Section 32, Anderson Township, was a gas well at 880 feet.

The greater amount of drilling in Indiana is in Vanderburg County. In Center Township, Vanderburg Oil Corp.'s No. 6 on the George Hornby farm, Section 32, produced 6 bbls. initial from 906 feet. No. 7 on the same farm produced an initial of 8 bbls. at 906 feet, and No. 8 same farm was dry at 1,065 feet. Foreman & Millers' No. 2 on the Katherine Builtman farm, Section 20, same township, had an initial of 20 bbls. Perry Tichenour's No. 1 on the Oscar Euler farm, Section 29, same township, is good for 10 bbls. at 917 feet. C. C. Taliaferro, Jr.'s test on the Bernard Heerdink farm, Section 7, Center Township, came in a duster at a total depth of 1,125 feet. Same party drilled a dry hole in No. 1 on the Henry Foltz farm, Section 32, Center Township, at 1,105 feet. John R. Knapp and others' test on the John Adler farm, Section 30, Center Township, was dry at 1,125 feet. Charles C. Talliaferro, Jr., has a rig on the Henry Neidhammer farm, Section 20, Center Township. Drake & Young are drilling on the Gram heirs farm, Section 32, same township. W. Myers and others' test on the Johnson-Pfohl farm, Section 29, Center Township, is reported with an initial of 10 bbls. from 917 feet, with No. 2 drilling on the same farm. J. S. Young, Jr., is drilling on the William Roth farm, in Section 20, same township.

### KENTUCKY

Two completions were reported from Kentucky. Earnest Porters' test on the Ida Kelley farm, in Ohio County, was a dry hole at a total depth of 625 feet. J. H. Hayne's No. 2 on the Ellis Hines farm, in the Swope Pool, same county, produced 5 bbls. initial.

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# Deeper Gas Pay Opened in Elm Grove Field; Ten Completions in North Louisiana District

By J. R. CRUMPTON
Staff Correspondent, Louisiana-Arkansas

SHREVEPORT, La., Feb. 10.—C. R. Reid's No. 1 Dotys, Section 7-16-11, north of the Elm Grove Field in Bossier Parish, blew in with an estimated flow of 25,000,000 feet of gas and considerable salt water from 3,020 feet and was the only wildcat development of interest in this division during the past week. The hole is open with the exception of 100 feet of 10-inch surface casing and the operators are not sure from what depth either the gas or water is coming, as shows of both have been encountered at several different depths. Gas sand was first reported cored from 2,434-40 feet and a sand bearing some oil at 2,461 feet. A drill stem test from 2,550-70 feet developed salt water with a good show of oil and gas, and another test from 2,968 to 3,017 feet resulted in salt water. Only 3 feet has been made since the last test. The well is of importance since it opens up a deeper gas paying horizon than has yet been encountered in the Elm Grove Field to the south.

### NORTH LOUISIANA

The North Louisiana district reported 10 completions with a high average of producers, though a majority of them were small producers. The finished wells consisted of one good gasser, six oil wells and three dry holes. United Gas Public Service Co.'s No. 1 Skannell Unit, Section 13-17-12, in the Sligo Field, Bossier Parish, came up to expectations as indicated on drill stem test last week and gauged 15,628,000 feet of gas from the total depth of 4,250 feet. The pay is coming from Oolitic lime in the Glen Rose of the upper Trinity horizon and is the second well in this field to produce from this pay zone, although the first, drilled a few years ago, made only about 2,000,000 feet of gas and a small amount of oil. It is expected that United Public Service Co., which owns practically the entire field, will drill other tests to the Trinity, and will also make further tests of the Washita or Fredricksburg pay at 3,220 feet. The present well blew out at this depth, making an estimated flow of 50,000,000 feet of gas, and later, after casing was set to test, produced 75 bbls. of 42 gravity oil daily.

#### Zwolle Field

The Zwolle Field in Sabine Parish furnished two of the producers, one of which was the best well of the week. Monroe Production Co.'s No. 1 Sabine Lumber Co., Section 7-7-11, is flowing 400 bbls. of pipe line oil daily from 2,443 feet. The well is in the immediate vicinity of many good wells completed during the past few months and came in flowing without the use of acid. In Section 14-7-11, J. C. Chandler's No. 1 Rains was a 30-bbl. pumper from 2,508 feet. Practically all of the activity in Zwolle is on the eastern flank, north of the town of Many. The shallow Converse Field, about 15 miles northwest of Zwolle, Sabine Parish, reported four producers but none of them was a flowing well. Cleary Brothers' No. 1 E. K. Harris, Section 10-9-13, is pumping 75 bbls. of oil and 75 bbls. of water from 1,865 feet, and Helena Oil & Gas Co.'s No. 2 Chambliss heirs, Section 20-9-13, is a 5-bbl. pumper from 1,955 feet. Acid was used in both wells, in the former at 1,860 feet and in the latter at the completion depth. Dr. C. R. Reid's No. 1 W. S. Allen, Section 10-9-13, is pumping 15 bbls. daily from 1,623 feet, and in the same section J. I. Roberts' No. 1 E. K. Harris is pumping 30 bbls. from 1,952 feet.

All of these wells were completed in the chalk. Much interest is being shown in the new sand under the chalk, below the 2,000-foot level, and several wells have taken out permits to deepen to the horizon. The indications are, from the few wells completed from this sand, that the initial production will not be increased over the chalk pay, and in all likelihood will not be as consistent. The Converse area, by the use of acid, has had few dry holes since its discovery. Of the three dry holes, only one was a wildcat, E. R. Appleby's No. 1 J. L. Scales, Section 35-13-12, De Soto Parish, was abandoned at 2,430 feet after having been shut down at that depth for several months.

On the western flank of the Zwolle Field, Warren G. Craig's No. 1 J. F. Nulton, Section 2-7-13, encountered salt water and was abandoned at 2,585 feet with the base of the chalk logged at 2,480 feet. Pelican Natural Gas Co.'s No. 24 Louisiana Long Leaf Lumber Co., Section 5-7-11, in the eastern part of the field, was dry at 2,750 feet. Acid was used at this depth without results.

#### Bienville Wildcat

J. P. Evans has staked a new wildcat location in Section 15-17-7, south of the town of Gibsland in Bienville Parish. The test is surrounded by a block of 11,800 acres and the contract calls for a 3,000-foot test to begin by May 1, 1934.

In Bossier Parish, about 6 miles southwest of the old Bellevue Field, Jensen, Mixon & Gutzler's No. 1 Ledbetter, Section 6-18-11, tested salt water at 2,115 feet and the crew is drilling deeper. Six-inch casing was set in this test at 2,103 feet after coring a likely looking sand, defined as the Blossom.

Haynesville Partnership's No. 1 Anna Taylor, Section 11-23-8, just north of production in the Haynesville Field, is swabbing about 120 bbls. of oil daily and will probably be put on the pump.

A Trinity gas test on the eastern edge of the Sugar Creek Field, Claiborne Parish, seems destined to be a failure from the Oolitic lime. United Gas Public Service Co.'s No. 2 Tony Durrett, Section 8-19-5, has not encountered a show, but is arranging to make a drill stem test in a break in the lime at 4,494 feet.

In DeSoto Parish, Coker Oil Corp.'s No. 1 Mary Huson, Section 8-12-14, tested only a small amount of gas from 3,103 feet, after a good gas blowout at 2,935 feet a week ago. In the same parish, Gaskill and others' No. 1 Jim Guy, Section 3-11-13, has set 7-inch casing in red shale at 2,759 feet, and Hirschfield-Bailey's No. 1 Mickie, Section 7-13-12, is bailing a small show of oil from 1,775 feet.

In the southern part of Natchitoches Parish, George R. Stevens and others' No. 1 Clarke-Boyce Lumber Co., Section 10-5n-6w, topped the Can River formation at 2,980 feet and is coring at 3,216 feet.

### ARKANSAS

The Arkansas district reported two completions, both dry holes. About 3 miles north of the Miller County Field, east of Texarkana, Frank W. Rowe's No. 1 J. H. Dominick, Section 21-15-16, was abandoned in the pay horizon of that area as a salt water well at 2,952 feet. The well had been closely watched during the past few weeks as a possible extension of production to the north. In Ouachita County, F. G. Harrell's No. 1 Poindexter, Section 35-15-8, had only a small show and was abandoned as dry at 2,352 feet.

Although not officially completed, two wells in the Miller County Field were put on the pump during the past week for a short period. Arkanva Oil Corp.'s No. 1 Smith, Section 35-15-26, pumped 400 bbls. of pipe line oil in 36 hours, then sanded up, and the crew is pulling tubing to clean the hole. It bids fair to be one of the best pumpers in this limited field. C. E. Murdock's No. 1 Andrew Rose, Section 4-16-26, pumped 25 bbls. of oil and considerable salt water from 2,933 feet and arrangements are being made to plug back in an effort to cut off the water flow. This well was completed at 2,941 feet and was plugged back 8 feet because of salt water. The eyes of the operators in that area are all on Fitzwater and others' No. 1 C. J. Norsen, Section 20-15-27, several miles west of production toward the city of Texarkana. This test is drilling 7-inch plug at 3,008 feet and will take a core before bailing.

## Wildcat Operations in Louisiana-Arkansas

(Rotary operations unless otherwise designated)

### North Louisiana

**BOSSIER PARISH**

| Company, well, farm name, section and block— | Remarks: |
|---|---|
| C. E. Reid, tr.'s No. 1 Dotys, 730 ft. S, 618 ft. W, NE SE Sec. 7-16-11 | S.D. 3,020 ft. |

**CADDO PARISH**

| | |
|---|---|
| W. O. Bliss' No. 1 McDade, 330 ft. N and E, SW cor. NW NW Sec. 3-20-15 | Drlg. chalk 1,450 ft. |

**CALDWELL PARISH**

| | |
|---|---|
| Terrell & Price's No. 1 La. Central Lbr. Co., 300 ft. N, 200 ft. W, SE cor. NW NE Sec. 18-11-3e | Drlg. 2,076 ft. |

**CATAHOULA PARISH**

| | |
|---|---|
| T. R. Hincey's No. 1 Millsaps, Sec. 32-9-4e | Derrick. |

**CLAIBORNE PARISH**

| | |
|---|---|
| Haynesville Partnership's No. 1 Anna Taylor, 330 ft. N and E, SW cor. SE SW Sec. 11-23-8 | Swbng. 120 bbls. 4,595 ft. |

**DE SOTO PARISH**

| | |
|---|---|
| Coker Oil Corp.'s No. 1 Huson, 200 ft. S, 500 ft. W, NE cor. NW Sec. 8-12-14 | Testing 3,103 ft. |
| Geo. M. LeGrand's No. 1 Faris, 330 ft. S and W, NE cor. SE Sec. 19-11-15 | Tested dry, W.O. 2,360 ft. |

**MOREHOUSE PARISH**

| | |
|---|---|
| Zeiger & Bacon's No. 1 Crossett, 400 ft. N, 300 ft. W, SE cor. Sec. 41-23-6e | Drlg. 935 ft. |

**NATCHITOCHES PARISH**

| | |
|---|---|
| Geo. R. Stevens' No. 1 Clarke-Boyce Lbr. Co., 330 ft. N and W, SE cor. Sec. 10-5n-6w | Coring 3,216 ft. |

**SABINE PARISH**

| | |
|---|---|
| J. F. Anderson's No. 1 Paul, Sec. 14-9-14 | S.D. 2,004 ft. |
| Frank R. Foster, Inc.'s No. 1 D. E. Stephens, 330 ft. S and E, NW cor. SE NW Sec. 17-9-11 | S.D. 3,186 ft. |

**CONVERSE DISTRICT**

| | |
|---|---|
| Arrock Oil Co.'s No. 1 Hewitt, 330 ft. N and E, SW cor. NE SE Sec. 20-9-13 | S.D.; W.O. 1,606 ft. |
| J. F. Anderson's No. 1 Burkett, 135 ft. N, 655 ft. E, SW cor. NW Sec. 10-9-13 | W.O.S.R. 1,921 ft. |
| Nick Barbare's No. 1 Bolton, Sec. 9-9-13 | Drlg. plug 1,705 ft. |
| Nick Barbare's No. 1 Burkett, 500 ft. N, 900 ft. E, SW cor. NW Sec. 10-9-13 | W.O.S.R. 2,018 ft. |
| Clyde Bell's No. 1 Burkett, 280 ft. N, 165 ft. E, SW cor. Sec. 10-9-13 | Drlg. 1,220 ft. |
| J. W. Bettis et al's No. 1 Frost Lbr. Ind., 330 ft. S and W, NE cor. SW Sec. 15-9-13 | Rigging up. |
| Cleary Bros.' No. 1 Harris, 105 ft. N, 330 ft. E, SW cor. SE NW Sec. 10-9-13 | Comp. pumping 75 bbls. 1,865 ft. |
| A. G. Craig's No. 1 Bolton, 330 ft. N and E, SW cor. NW NW Sec. 33-9-13 | Drlg. 1,120 ft. |
| Florence Oil Co.'s No. 2 Crawford, Sec. 20-9-13 | Using acid 1,865 ft. |
| Alfred Glassell's No. 1 Tatum, 330 ft. N and W, SE cor. NE NW Sec. 9-9-13 | S.D.; W.O. 1,942 ft. |
| Helena O. & G. Co.'s No. 2 Chambliss, 330 ft. S and E, NW cor. SW NE Sec. 20-9-13 | Comp. pumping 5 bbls. 1,955 ft. |
| L. D. Higgins et al's No. 1 Burkett, 330 ft. S, 270 ft. W, NE cor. Sec. 16-9-13 | Set 10-in. 40 ft. |
| R. P. Holland's No. 1 Harris, 687 ft. N, 530 ft. E, SW cor. SE NW Sec. 10-9-13 | Comp. pumping 30 bbls. 1,952 ft. |
| R. P. Holland et al's No. 1 A. J. Burkett, 990 ft. N, 330 ft. W of C. Sec. 10-9-13 | Arranging to deepen 1,850 ft. |
| T. J. Johnson's No. 1 Lynch estate, 330 ft. S and W, NE cor. NW SE Sec. 29-9-13 | Drlg. 1,300 ft. |
| Lanier & Rodgers' No. 1 Paul, 260 ft. N, 40 ft. E, SW cor. NW, Sec. 10-9-13 | W.O.S.R. 1,900 ft. |
| Zan Lloyd's No. 1 Henderson, 330 ft. N and W, C Sec. 29-9-13 | Drlg. 800 ft. |
| Miles & Strickland's No. 1 Ross & Son, 150 ft. N, 990 ft. E, SW cor. NW Sec. 10-9-13 | W.O.S.R. 2,007 ft. |

(Continued on Page 94)

#### Daily Average Runs

The daily average runs from the several pools were:

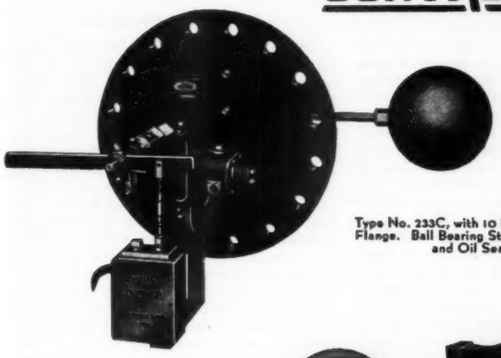
**NORTH LOUISIANA**

| | |
|---|---|
| Caddo, light | 4,630 |
| Caddo, heavy | 1,400 |
| Converse | 1,055 |
| Cotton Valley | 530 |
| DeSoto and Red River | 1,480 |
| Elm Grove | 325 |
| Haynesville | 3,785 |
| Holly | 200 |
| Homer | 2,630 |
| Pleasant Hill | 230 |
| Sarepta-Carterville | 795 |
| Urania | 3,090 |
| Zwolle | 7,490 |
| Total North Louisiana | 27,640 |
| Total previous week | 27,961 |
| Decrease | 321 |

**ARKANSAS**

| | |
|---|---|
| Champagnolle | 1,200 |
| El Dorado | 2,480 |
| Lisbon | 400 |
| Miller County | 895 |
| Nevada | 535 |
| Smackover, light | 2,490 |
| Smackover, heavy | 20,175 |
| Stephens | 655 |
| Urbana | 2,400 |
| Total Arkansas | 32,230 |
| Total previous week | 32,125 |
| Decrease | 895 |
| Total both States | 58,870 |
| Total previous week | 60,086 |
| Decrease | 1,216 |

# STAY INSIDE with these FISHER CONTROLLERS



Type No. 233C, with 10 inch Series 40 Steel Flange. Ball Bearing Stuffing Box Pilot Valve and Oil Seal Switch.

Type No. 271C, Ex. Heavy Stuffing Box Unit. Ball Bearing Rotary Stem (with vacuum seal) and with 3-light Oil Submerged Switch and Type No. 779 Pilot Valve.

**It is no longer necessary to have an outside Float Cage to obtain good operating Liquid Level Controllers.**

Fisher, having pioneered the Outside Float Cage type of control for many years, has also lead the way on inside Float Controls. There are three series of inside Float Level Controllers. Two of these, the Type No. 233C and Type No. 271C, are illustrated above.

Not babies or juniors · · · these Controllers are tough, sturdy "He-Man" units of full size construction. Heavy enough for any service and accurate enough for the most critical control.

This equipment is available with a number of variations: bolted flange type or with extra heavy screwed stuffing box type to mount directly on the tower wall. Can be furnished with pilot valve for remote operation of Diaphragm Motor Valve or with the special safety oil submerged three-light indicating mercury switch or both. Suitable for all pressures and operating conditions.

Outstanding refinery construction and designing engineers are using these controls in greater numbers on every job. These are proved controls that have been used successfully for several years on such installations as separator water drawoff, reflux drum, residuum vacuum tower on asphalt, or heavy oils, and innumerable other refinery and gasoline plant level control points.

Fisher engineers will gladly give you the benefit of their experience in solving any control problem you may have. If you have no immediate problems, at least modernize your ideas. Write today for the new FISHER Catalogue.

**Fisher Governor Company**

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201 SOUTH FIRST AVENUE, MARSHALLTOWN, IOWA


# NOTICE OF SALES

## PRODUCERS AND REFINERS CORPORATION

Pursuant to certain court orders, all properties and assets of Producers and Refiners Corporation (excepting cash and accounts receivable) will be sold at public auction at various times and places between March 15th and April 15th next, such properties and assets, among other things, to include the following:

### *Refineries*

1. Refinery with 10,000-barrel daily capacity, located at Parco, Wyoming, together with oil pipe line system running from said refinery to the Lost Soldier and Salt Creek Fields, Wyoming; contracts covering the purchase and sale of crude oil, petroleum products, etc.; inventories; tank cars; tanks; majority of the capital stock of a marketing company; and lands, buildings, telephone system, gas and electric distribution systems constituting generally the Town of Parco.

2. Refinery with 6,000-barrel daily capacity, located at West Tulsa, Oklahoma, together with oil pipe line system running from said refinery to certain producing fields in Oklahoma; contracts covering the purchase and sale of crude oil, petroleum products, etc.; inventories; tank cars; tanks; patents.

3. Skimming plant and site at Blackwell, Oklahoma, shut down since 1925.

### *Oil and Gas Leases*

Oil and gas leases, also operating agreements, covering both producing and undeveloped acreage in the States of Oklahoma, Kansas, Wyoming, Texas, Montana, New Mexico and Mississippi; 15,496.4 acres in producing properties and 101,004.38 acres in undeveloped properties as at December 31, 1933.

### *Gas Projects*

Producing gas wells, leases, and interests therein in the Sand Draw, Muskrat, Wertz, Mahoney Dome and Ferris Fields, Wyoming, together with certain contracts covering the production, transportation, purchase and sale of gas production therefrom; 34 producing gas wells. Total estimated gas reserves 287,000,000,000 cubic feet.

51% of the capital stock of Southwestern Development Company, a holding company which owns gas-producing, pipe line and distributing companies operating in the State of Texas, also an interest in the gas pipe line system extending from the Texas Panhandle Field to Denver, Colorado, and vicinity, and an interest in Natural Gas Pipe Line Company of America and Texoma Natural Gas Company, which own a gas pipe line system extending from the Texas Panhandle Gas Field to the vicinity of Chicago, Illinois.

* * * * * *

### *Miscellaneous Properties*

Miscellaneous properties consisting of such items as warehouse stocks, automotive equipment, furniture and fixtures, notes, bonds, capital stock, conditional sales contracts, real estate, Parco brick plant and Parco cyanite project.

Oil and gas leaseholds and similar properties will be offered in parcels so that an interested party may submit a separate bid therefor. Certain properties will be offered as a unit, such as a refinery and oil pipe lines, tank cars, tankage, gasoline contracts, etc., connected therewith.

For further information as to the properties to be sold, the terms and conditions of sale and the time and place of various sales, inquiries should be addressed to

**L. R. Crawford and P. C. Spencer**

*as Receivers for*

**Producers and Refiners Corporation, Independence, Kansas.**

# Promising Wildcat in Area North of Coalinga; Additional Litigation in Huntington Beach

By L. P. STOCKMAN
Staff Correspondent, California Fields

LOS ANGELES, Calif., Feb. 12.—Preliminary plans were formulated early in the week to organize an oil trade association in California and thus centralize constructive activities. There is no truly representative organization of producers and refiners in the State, although several associations are doing splendid work along restricted lines. Unfortunately some existing organizations have adopted a policy designed primarily to advance their individual interests. To weld producers and refiners for mutual benefit, a group of operators a few weeks ago called a general meeting to discuss organizing a trade association representative of all interests. The meeting this week is the outgrowth of that invitation.

At the initial meeting attended by approximately 150 operators, it was unanimously agreed to proceed with organization of the proposed association. The meeting was called to order by Thomas W. McManus and proceeded to elect Hooper C. Dunbar, chairman; Angus J. Crites, vice chairman, and Rush M. Blodget, executive secretary. Chairman Dunbar appointed a permanent committee to formulate plans, draft articles of incorporation, prepare by-laws, receive and consider suggestions from all producers and refiners and to enlarge its membership to secure fair representation of the entire industry. The organization committee consists of Hooper C. Dunbar, Angus J. Crites and Rush M. Blodget, ex-officio members, and Robert M. Pease, Charles A. Johnson, H. A. Bardeen, Eugene G. Starr, W. H. Taylor and Robert E. Hines.

### Organization Committee

The resolution authorizing a permanent organization committee, presented by Robert M. Pease, provides "that a committee on permanent organization be created; that it consist of seven members, appointed by the chairman; that the committee shall embrace one or more producers, one or more refiners, one or more attorneys, and shall be fairly representative of the principal producing districts of the State; that this committee shall formulate plans for organization of a California Petroleum Trade Association, draft articles of incorporation as a California non-profit corporation, and also the by-laws, and report at the next meeting; and that to this end the committee shall receive suggestions from all producers and refiners, large and small, and may enlarge its membership in keeping with fair representation of the industry."

The success of the projected association depends to a large extent upon how liberal the organization committee makes its by-laws and provision to insure equitable representation. Unless a large representation is secured it will be just another organization. One thing to be decided is whether voting privileges should be done by units, or by production barrelage, refinery throughput, or based upon a combination of each. Another question is whether companies having large production and whose large purchases are sustaining factors of the industry should be definitely assured of representation on the board of directors. The organization committee is also expected to determine whether it would be advisable to outline fully the activities of the association or develop the lines of activity from time to time. It is obvious the purposes of the association should be partially defined and definite assurance given that no one group will be placed at a disadvantage. If the association becomes a factor of importance it is likely the Oil Producers Sales Agency will be dissolved in the interests of harmony and economy, as administrative costs of the sales agency have approximated one-quarter of a cent per barrel of oil produced by members.

### Promising Wildcat

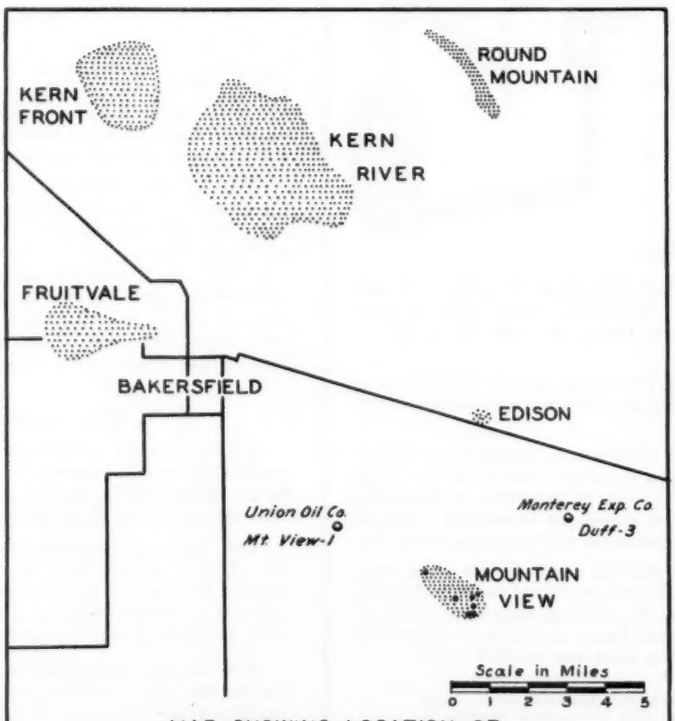
Western Gulf focused attention on the area north of Coalinga late this week by hauling in pipe to be landed and cemented in its Fresno County wildcat in Section 15-17-15. Gulf's No. 1 S. P. Land Co. is bottomed at 7,830 feet and has 16-inch surface string landed at 1,495 feet. Officials of Western Gulf, maintaining their usual conservative attitude, are reluctant to venture an opinion as to the importance of the showings encountered, but the company would not incur the expense of landing casing in a wildcat unless the test showed some promise. This wildcat, along the west side of the San Joaquin Basin, between Coalinga and Los Banos, encountered the Temblor a few months ago and is probably in either the Kreyenhagen or Tejon formation of Eocene age. The company is expected to make an open hole test within two weeks.

Union Oil Co. has resumed drilling operations in its No. 1 K. C. L., a wildcat in the Union Avenue area, following several cement jobs at 5,647 feet. This well, which may possibly be an outpost in the extreme western end of the Mountain View Field, is coring solidly to determine subsurface conditions. Since resuming drilling operations, the company has cored 30 feet of oil sand interspersed with a coarse gravel and it is probable another production test will be conducted in the near future. Ohio Oil Co. has not yet encountered any substantial showings of oil and gas in No. 1 K. C. L., a wildcat on the southeast nose of the Buena Vista Hills and in the extreme eastern end of Buena Vista Lake. General Petroleum failed to develop commercial production in No. 1 Berry, a deep test in the South Belridge Field of Kern County at 9,972 feet, and preparations are being made to resume drilling. The failure of this deep test to result in commercial production is not especially discouraging as the bit is believed to have been in brown shale when drilling was concluded. It is believed the Temblor will be encountered in the immediate future, as the brown shale in the bottom of the hole contained several streaks of sand, indicating a possible transition zone between the brown shale and underlying Temblor.

### Protest Discrimination

Operators in the San Joaquin Valley have taken preliminary steps to perfect an organization to eliminate what many designate as unfair discrimination. The projected organization will be known as the San Joaquin Valley Oil Producers Association and its primary purpose will be "to secure a proper proportion for the San Joaquin Valley fields of the production allotted to California by the Federal administrator; to protect California's present market for heavy crude; to work for a higher price for crude produced in the San Joaquin Valley; to resist all efforts to lower California's production allotment; to lend every effort to defeat the depreciation and depletion income tax program and to use united effort to combat all elements that may work against the best interests of the producers of the San Joaquin Valley."

## New Field in California to Be Most Active




MAP SHOWING LOCATION OF
MOUNTAIN VIEW OIL FIELD
WITH RELATION TO NEIGHBORING FIELDS

MARTIN VAN COUVERING
PETROLEUM ENGINEER
LOS ANGELES

### Drilling Program

Operators in the Montebello Field have not yet reached an accord with respect to future deep zone exploitation, as required by a ruling of the oil administrator. Universal Consolidated, Bardeen Petroleum Co., Ring Petroleum Co., Republic Petroleum Co., Community Oil Co. and E. G. Starr have submitted a proposal to the Central Proration Committee whereby the drilling program for this field may be adjusted every six months with the stipulation that not more than 12 wells may be started down to the deep Zone within the next six months. Standard, Union, Texas, Shell and St. Helens Petroleum Co., which control the greater part of the productive acreage, are opposed to the preliminary proposal, and will likely submit a plan to insure orderly development of the deep Cruz zone. As far as can be ascertained, operators are not averse to adjustment of drilling operations on a six months' basis, but are concerned with the allocation of new wells which each company will be privileged to drill into production. At present, Universal Consolidated has two drilling wells headed down to the deep Cruz zone; Texas Co., two; Standard, two, and the Community Oil Co., one.

### Huntington Beach

Litigation involving production from beneath state tidelands adjacent to the Huntington Beach Field has become vitriolic due to the hurling of indiscriminate charges and counter charges. Early in the week, Gov. James Rolph, Jr., appointed George D. Nordenholt of Los Angeles, director of natural resources and instructed him to immediately investigate charges that state officials and the Standard Oil Co. had conspired against independent oil operators engaged in tideland exploitation in the Huntington Beach Field. During the week state officials instituted additional litigation and present plans call for the filing of additional suits during the next 15 days.

Two more wells died in the town lot area during the week, due either to gas depletion or the holes having sanded. The wells are American Petroleum Co.'s No. 1 and Rosemar Oil Co.'s No. 1. Earlier in the month Bruce Brothers' No. 2

Crudoil and Two-And-One Oil Co.'s No. 4 stopped flowing. Early in January E. K. Allison's No. 1 A. McClure died but it has been returned to production pumping 375 bbls. of 24.8 gravity per day. Bruce Brothers are installing pumping equipment and will attempt to recomplete No. 2 Crudoil within a few days. C. W. Camp's No. 1 Laughlin, against which the State proceeded several weeks ago, refused to respond to swabbing operations of several days' duration and is being rigged up to pump. During the week S. M. Brooks completed No. 1 Townsite, flowing 755 bbls. of 26.1 gravity from 5,341 feet. The relatively small initial daily production tends to support the opinion that gas waste in Huntington Beach has become of considerable concern. If this well had been finished a few weeks ago before pressure had been releasd on the gas head, it would undoubtedly have registered substantial production. Standard Oil Co. completed No. 64-B in the town lot area, but this well, bottomed at 4,434 feet and redrilled to 4,325 feet, was good for only 195 bbls. of 23.8 gravity per day on the beam. Black Eagle Oil Co., which is drilling a tideland well at the end of a short pier adjoining the Barley Flats area, has cored several streaks of oil sand and correlation work indicates it is running slightly higher stratigraphically than wells inside the tide line. This well looks promising and is expected to register commercial production. It is being drilled on the only tideland lease issued in the Huntington Beach area and has been delayed due to litigation.

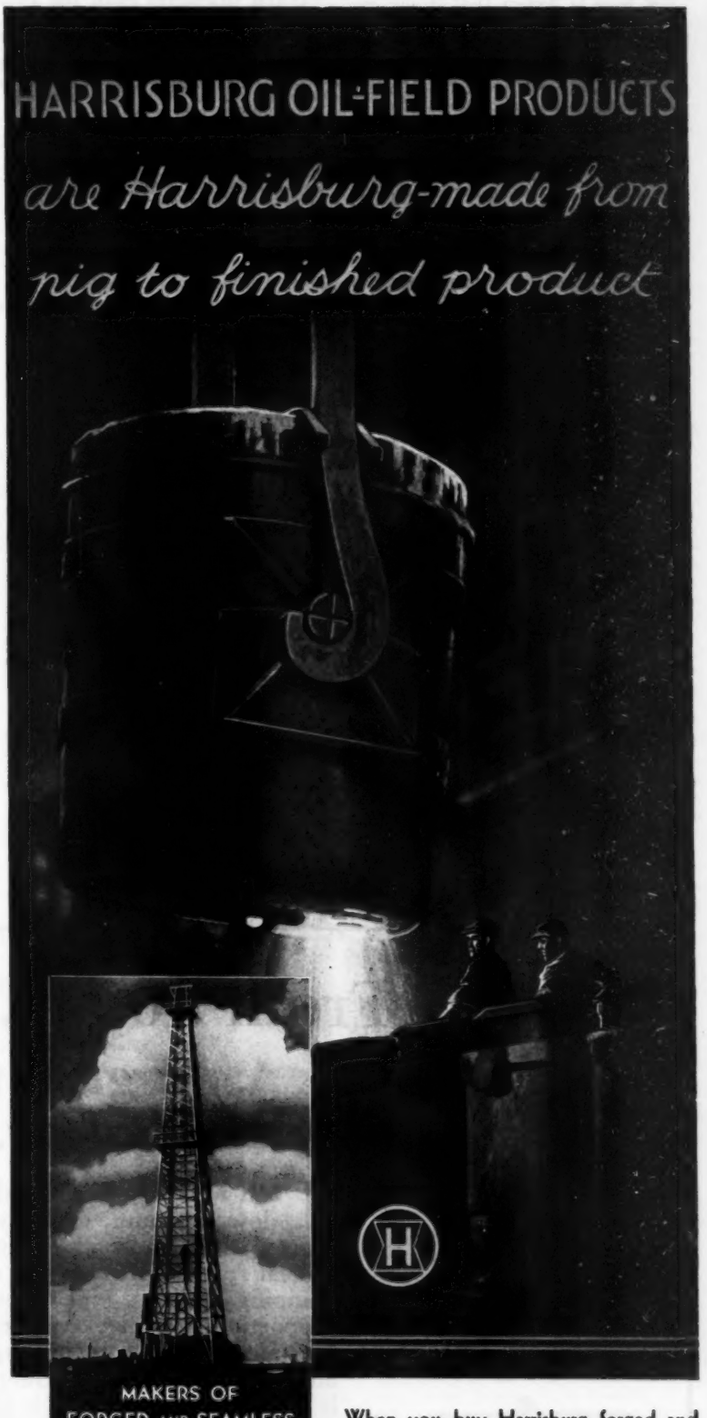
### Mountain View

Hogan Petroleum Co., which picked up the top of the Santa Margarita in No. 1 Haley in the Mountain View Field and concluded drilling operations at 6,060 feet, is running a formation tester. No. 1 Haley has apparently encountered a cross fault and the company is anxious to get a line on its status. Severns Drilling Co. is skidding the rig of No. 1 Smith 142 feet south of the original location to comply with Federal requirements for a setback of 330 feet from property lines. Centralia Oil Co. has been advised by Umpire Pemberton it must conform with the required setback before its drilling would be sanctioned.

Mount Poso Field of Kern County is expected to see several additional wells spudded during the next 30 days, and it is likely normal development will predominate early in the year. Shell Oil Co. recently spudded in on the Mathews fee property in Section 4-27-28, and the starting of this well made it obligatory for Union Oil Co. to undertake additional development. As a consequence, Union is building rigs for Nos. 9 and 10 on the S. & M. property in Section 4-27-28. All three are scheduled for completion in the second Vedder zone, discovered by Shell early in 1933. General Petroleum is also being drawn into this offsetting program and is expected to start drilling in the near future on No. 18 Glide and No. 9 Heisen. Hemovitz Oil Co. has spudded in its third well in the Mount Poso Field, which should be completed early in March. Associated Oil Co. is rotating in No. 1 Williamson, a deep test in the Lost Hills Field of Kern County, in a hard gray sand a little below 7,150 feet. In the Midway-Sunset Field of Kern County, Honolulu is making hole in No. 15 in Section 14-32-24 and Standard Oil Co. is making preparations to start two

**IMPORTANT NORTHERN CALIFORNIA WILDCATS**

| Company, well and location— | S.T.R. | Depth | Status |
|---|---|---|---|
| General Pet., No. 7 Capitan, Santa Barbara Co. | 32- 5-30 | 1,463 | plug 1,438 |
| General Pet., No. 9 Capitan, Santa Barbara Co. | 32- 5-30 | rig | suspended |
| Shell Oil Co., No. 2 Capitan, Santa Barbara Co. | 32- 5-30 | 280 | sd. drilling |
| Lincoln Drlg. Co., No. 3 Summerland, Santa Barbara Co. | 21- 4-26 | 2,810 | rd. sh. drilling |
| Dietzmann, J., No. 1 Summerland, Santa Barbara Co. | 16- 4-26 | 3,846 | suspended |
| Meganos Oil Co., No. 1 Purisima, Santa Barbara Co. | 28- 8-34 | 3,000 | suspended |
| Barnsdall-Rio Grande, No. 4 Doty Elwood, S. Barbara Co. | 15- 4-29 | 4,868 | redrill 3,480 |
| Signal Oil & Gas Co., No. 2 Elwood, Santa Barbara Co. | tideland | 5,112 | plug 4,975 |
| Cuyama Oil Co., No. 1 Cuyama, Santa Barbara Co. | 12-10-27 | 3,950 | suspended |
| Richfield, No. 3 Rincon fee, Ventura Co. | 17- 3-24 | 2,557 | to deepen |
| Woodrow Pet., No. 1 Rincon, Ventura Co. | 4- 3-24 | 7,612 | fishing D/P |
| Hancock Oil Co., No. 1 Fillmore, Ventura Co. | 13- 4-19 | 3,357 | recemented |
| Oil Ridge Oil Co., No. 1 Fillmore, Ventura Co. | 1- 4-19 | 360 | rebuild road |
| Chappuis, Louis, No. 1 Sespe, Ventura Co. | 1- 4-20 | .... | build. road |
| Kneiper & Atha, No. 1 Bardsdale, Ventura Co. | 7- 3-19 | 1,720 | suspended |
| Williamson & Donaher, No. 1 Simi, Ventura Co. | 36- 3-18 | 790 | cleaning out |
| Dabney, H. R., No. 1 Simi, Ventura Co. | 22- 2-18 | 1,311 | sd. sh. drilling |
| Midlands Pet., No. 1 Ojai, Ventura Co. | 9- 3-23 | 7,830 | redrill 5,912 |
| Laing & Jacobs, No. 1 Shields, Ventura Co. | 32- 4-19 | 702 | rd. sh. drilling |
| Wilshire Oil Co., No. 1 Sulphur Mountain, Ventura Co. | 20- 4-21 | 2,198 | suspended |
| Kirk, W. A., No. 1 Sulphur Mountain, Ventura Co. | 21- 4-21 | 1,601 | br. sh. drilling |
| Mosher, J. W., No. 1 Santa Paula, Ventura Co. | 22- 4-21 | 1,803 | cleaning out |
| Las Posas Pet., No. 1 Las Posas, Ventura Co. | 22- 3-20 | 6,030 | fishing D/P |
| International Oil Developers, No. 1 Conejo, Ventura Co. | 33- 2-20 | 2,950 | hd. sd. drilling |
| Hub Pet. Co., No. 1 Gould Hills, Kern Co. | 22-29-21 | 6,840 | suspended |
| Shell Oil Co., No. 1 Gould Hills, Kern Co. | 21-29-21 | 1,611 | sd. sh. drilling |
| Standard Oil Co., No. 1 McKittrick, Kern Co. | 15-30-22 | rig | rigging up |
| Casa Mira Oil Co., No. 1 Belridge, Kern Co. | 29-28-20 | 4,902 | suspended |
| General Pet., No. 1 Belridge, Kern Co. | 30-28-21 | 9,972 | drill ahead |
| Union Oil Co., No. 18 Belridge, Kern Co. | 36-27-20 | 4,260 | sd. sh. drilling |
| Pyramid Hills Oil Co., No. 1 Devils Den, Kern Co. | 24-25-18 | 4,140 | suspended |
| Fowler, F., No. 1 Blackwell Corner, Kern Co. | 15-26-19 | 3,170 | suspended |
| North American, No. 1 Jasmine, Kern Co. | 25-25-27 | .... | location |
| Associated, No. 1 Lost Hills, Kern Co. | 2-26-20 | 7,180 | hd. sd. drilling |
| Howells Brothers, No. 1 Round Mountain, Kern Co. | 32-28-29 | 1,801 | will set pipe |
| Keno Pet. Co., No. 1 Lerdo, Kern Co. | 14-29-27 | 4,531 | suspended |
| Caribou Record Oil Co., No. 1 Kern Front, Kern Co. | 11-28-27 | 2,873 | hd. sh. drilling |
| Shafter Oil Co., No. 1 Shafter, Kern Co. | 8-28-25 | 912 | sd. sh. drilling |
| Ohio Oil Co., No. 1 Buena Vista Lake, Kern Co. | 31-31-26 | 5,470 | sd. sh. drilling |
| Consolidated Oil Synd., No. 1 Union Avenue, Kern Co. | 25-30-28 | rig | suspended |
| Severns Drilling Co., No. 1 Union Avenue, Kern Co. | 24-30-28 | rig | rigging up |
| Union Oil Co., No. 1 Union Avenue, Kern Co. | 15-30-28 | 5,675 | O. S. drilling |
| Alta Oil Co., No. 1 Union Avenue, Kern Co. | 6-30-28 | 6,260 | sd. sh. drilling |
| Hogan Pet. Co., No. 3 Shell Mountain View, Kern Co. | 29-30-29 | 3,146 | sd. sh. drilling |
| Hogan Pet. Co., No. 3 Mountain View, Kern Co. | 29-30-29 | 6,060 | O. S. drilling |
| Monterey Expl. Co., No. 1 Edison, Kern Co. | 15-30-29 | 1,220 | sd. sh. drilling |
| Labadie, E. L., No. 1 Mountain View, Kern Co. | 29-30-29 | 5,861 | sd. sh. drilling |
| Standard, No. 1 Mountain View, Kern Co. | 19-30-29 | rig | rigging up |
| Comanche Oil Co., No. 1 Comanche, Kern Co. | 15-32-29 | 1,456 | cleaning out |
| Badger Oil Co., No. 1 Wheeler Ridge, Kern Co. | 31-11-19 | 5,170 | gr. sd. drilling |
| Gatton & Luethe, No. 1 Madera, Madera Co. | 32-10-17 | 3,020 | suspended |
| Russ Oil Synd., No. 1 Kingsburg, Fresno Co. | 20-12-11 | 3,900 | fishing D/P |
| Bergman, Harry, No. 1 Kingsburg, Fresno Co. | 12-12-11 | 4,550 | sd. sh. drilling |
| Graham & Loftus, No. 1 Raisin City, Fresno Co. | 20-15-18 | 5,906 | suspended |
| Emerich Oil Co., No. 1 Mendota, Fresno Co. | 35-13-13 | 4,302 | sd. sh. drilling |
| Western Gulf, No. 1 S. P., Fresno Co. | 3-17-15 | 7,830 | O.&G. showing |
| Hogan Pet. Co., No. 1 Joaquin Ridge, Fresno Co. | 28-20-16 | 6,605 | suspended |
| Kent & McDonald, No. 1 Carrizo Plains, S. Luis Obispo Co. | 3-22-22 | 3,830 | suspended |
| Farrel Pet., Well No. 1, San Luis Obispo Co. | 18-31-12 | 1,095 | cleaning out |
| Willet Oil Co., No. 1 Choiame, San Luis Obispo Co. | 10-25-15 | rig | rigged up |
| Guess, E. B., No. 1 Corcoran, Kings Co. | 7-21-21 | 6,197 | suspended |
| Triune Oil & Gas, No. 1 Tulare Lake, Kings Co. | 5-23-20 | 230 | hd. sd. drilling |
| Panorama Oil Co., No. 1 Tulare Lake, Kings Co. | 2-23-21 | .... | material |
| Commonwealth Consd. Gas, No. 1 Tulare Lake, Kings Co. | 21-22-20 | 730 | bl. sh. drilling |
| Tulare Basin Oil Co., No. 1 Tulare Lake, Kings Co. | 2-23-19 | .... | location |
| Knudsen & Schmidt, No. 1 Reef Ridge, Kings Co. | 36-23-17 | 6,873 | suspended |
| Douglas, J. M., Well No. 1, Monterey Co. | 36-22-9 | 1,380 | sd. sh. drilling |
| Na-Pa Oil Co., No. 1 Griffith, Napa Co. | 7- 8-3 | 3,750 | suspended |
| Oakdale Oil Co., No. 1 Oakdale, Stanislaus Co. | 5- 2-10 | 4,760 | hd. sh. drilling |
| Pacific Northern Oil Co., No. 1 Guinda, Yolo County | 23-12-3 | 5,915 | hd. sd. drilling |
| Buttes Oilfield's Co., No. 1 Marysville, Sutter Co. | 35-16-1 | 2,731 | gas—shut in |
| Buttes Oilfields Co., No. 2 Marysville, Sutter Co. | 35-16-1 | 4,136 | Andesite—drlg. |
| Tehama Pet. Co., Well No. 1, Glenn Co. | 4-22-5 | 4,696 | suspended |
| Milham Exploration Co., No. 1 Tracy, San Joaquin Co. | 5- 4-5 | 1,277 | sd. sh. drilling |
| Orland Oil Synd., No. 1 Orland, Tehama Co. | 31-23-3 | 3,840 | cleaning out |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» » HARRISBURG, PENNSYLVANIA « «

new holes in Section 11-32-24 and Section 15-32-24.

### Elwood

Caroline Spalding and Pacific Western Oil Co. have started preparations to drill two new wells in the Elwood Field of Santa Barbara County and the latter's project is to begin making hole within 15 days. Pacific Western's No. 11, a recent completion on tideland drilling permit No. 92, established a potential daily rating of 2,010 bbls. Barnsdall and Rio Grande have been experiencing difficulty in drilling No. 8 Doty and work consists of cleaning out the hole at 3,480 feet. The top of the Sespe was logged in No. 8 Doty at 3,710 feet and bottom of the hole is now at 4,868 feet. To straighten the hole, the field department has set a series of whipstocks at 3,975 feet, 4,445 feet, 4,465 feet, 4,495 feet, 4,520 feet and 4,545 feet. The hole was plugged back to 3,300 feet, from which point redrilling operations have been started.

Union Oil Co. has just filed its intention of starting a new wildcat on the Rice property in Santa Barbara County, and this test, in Section 19-10-32, will probably be spudded in before the close of March. Union, late in January, acquired a block of 2,300 acres from A. N. Macrate, among which was the Rice property. Production is expected to be developed at a shallow depth, although a deep conclusive test may be drilled. The acreage acquired from A. N. Macrate is in the flat area approximately 3 miles north of present holdings. The only real deep drilling undertaken in this general area was done by Western Gulf Oil Co., which carried No. 1 Bradley to 10,296 feet before mechanical trouble forced a conclusion of drilling. Shell Oil Co. has spudded in No. 2 Orella west of the Capitan Field of Santa Barbara County. It will extend the proven limits if successful. General Petroleum has recompleted No. 4-A Barnard in the Ventura Avenue Field and it was returned to production doing 180 bbls. of 29.1 gravity per day after the hole, bottomed at 5,864 feet, had been redrilled and cleaned out to 4,700 feet. Associated is running five strings of tools in the Ventura Avenue Field and, while Shell is drilling in three wells, rigs have been erected for two additional projects.

**TANKER SHIPMENTS FROM LOS ANGELES TO DOMESTIC AND FOREIGN PORTS**

| | Total this week | Daily average | Total last week | Daily average | This year to date | Same time last year |
|---|---|---|---|---|---|---|
| Intercoastal-domestic— | | | | | | |
| Crude oil | ..... | ..... | 92,770 | 13,253 | 92,770 | ..... |
| Fuel oil | 546,448 | 78,064 | 233,975 | 33,425 | 1,217,933 | 74,775 |
| Diesel and gas oil | 77,981 | 11,140 | 74,071 | 10,582 | 152,052 | 444,173 |
| Gasoline | 248,979 | 35,568 | ..... | ..... | 403,194 | 508,562 |
| Kerosene | ..... | ..... | ..... | ..... | 79,620 | 250,130 |
| Other finished oil | ..... | ..... | ..... | ..... | ..... | 15,252 |
| Foreign exports— | | | | | | |
| Crude oil | 266,077 | 38,011 | 89,574 | 12,796 | 658,677 | 494,792 |
| Fuel oil | 23,978 | 3,425 | 159,183 | 22,740 | 596,130 | 700,859 |
| Diesel and gas oil | 1,509 | 216 | 30,270 | 4,324 | 187,417 | 317,406 |
| Gasoline | 40,837 | 5,834 | ..... | ..... | 466,868 | 569,834 |
| Kerosene | 3,604 | 515 | ..... | ..... | 65,188 | 134,053 |
| Coastwise-domestic— | | | | | | |
| Crude oil | ..... | ..... | 87,478 | 12,497 | 87,478 | 863,672 |
| Fuel oil | 288,758 | 41,251 | 96,558 | 13,794 | 894,269 | 881,642 |
| Diesel and gas oil | 36,905 | 5,272 | 17,812 | 2,545 | 61,444 | 161,678 |
| Gasoline | 79,248 | 11,321 | 322,166 | 46,024 | 963,571 | 972,058 |
| Kerosene | 7,392 | 1,056 | ..... | ..... | 7,392 | 16,696 |
| Naphtha distillates | ..... | ..... | ..... | ..... | ..... | 27,651 |

**TANKER SHIPMENTS FROM SAN FRANCISCO TO DOMESTIC AND FOREIGN PORTS**

| | | | | | | |
|---|---|---|---|---|---|---|
| Intercoastal-domestic— | | | | | | |
| Diesel and gas oil | ..... | ..... | ..... | ..... | 97,993 | 203,476 |
| Gasoline | 72,625 | 10,375 | ..... | ..... | 72,625 | ..... |
| Kerosene | 80,925 | 11,561 | ..... | ..... | 80,925 | 154,070 |
| Lubricants | 8,310 | 1,187 | ..... | ..... | 8,310 | ..... |
| Foreign exports— | | | | | | |
| Crude oil | 106,947 | 15,278 | ..... | ..... | 183,202 | 156,073 |
| Fuel oil | 30,751 | 4,393 | ..... | ..... | 110,102 | 129,709 |
| Diesel and gas oil | 38,366 | 5,467 | 105,213 | 15,030 | 144,274 | 149,278 |
| Gasoline | 186,952 | 26,707 | ..... | ..... | 264,994 | 580,550 |
| Kerosene | 66,953 | 9,565 | ..... | ..... | 77,912 | 139,142 |
| Lubricants | 5,491 | 784 | ..... | ..... | 19,955 | 13,072 |
| Other unfinished oil | ..... | ..... | ..... | ..... | ..... | 4,881 |
| Coastwise-domestic— | | | | | | |
| Fuel oil | 100,482 | 14,355 | 83,071 | 11,867 | 366,146 | 116,698 |
| Diesel and gas oil | ..... | ..... | ..... | ..... | 25,599 | 17,467 |
| Gasoline | 90,435 | 12,919 | 75,691 | 10,813 | 293,539 | 237,559 |
| Kerosene | ..... | ..... | ..... | ..... | 7,317 | 14,953 |

### Kettleman Hills

North Kettleman Oil & Gas Co. has resumed drilling on No. 1 Lillis-Welsh, following a temporary suspension of two or three weeks, during which a specially constructed tool was completed. The company is redrilling at 9,880 feet, although technically this is the present bottom of hole, as the company has sidetracked the old fish and is attempting to make new hole. Considerable difficulty has been experienced in sidetracking several hundred feet of drill pipe in the old hole at 10,944 feet and the company found it advisable to use a specially constructed tool which would deviate the bit sufficiently far enough from the original hole to prevent the old fish from falling back into the new hole. This well showed exceptional promise just previous to a premature explosion early last year and the outcome of drilling will be watched with considerable interest. If this well is a commercial producer it will prove the Kettleman North Dome Field for deeper production and greatly enhance the productivity of leases in the extreme western end. Several new wells are scheduled for completion in the North Dome during the next two or three months and, judging by the new rigs erected and additional locations staked, we may anticipate normal development practically all during 1934. Union Oil Co. recently spudded in No. 5 Amerada King and Standard is expected to start drilling operations on No. 54-1 P and No. 6-33 J. Superior Oil Co., which is drilling in No. 7 Huffman at 7,570 feet, is grading location for No. 8 Huffman, a new well to be drilled in Section 29-21-17.

Shafter Oil Syndicate has spudded in a new wildcat in the Shafter district of Kern County in Section 8-28-25 and, if carried deep enough, should prove of unusual interest. North American Oil Consolidated has staked location for a new wildcat on the Quinn property in the Jasmine area of Kern County in Section 25-25-27 and spud is expected late in March. Several attempts have been made to develop production in the Jasmine district of Kern County without success, although one or two wells logged minor showings. This area is relatively flat and it is rather difficult to pick a structure as there is practically no topographic evidence of folding. Shell is making good footage in No. 1 Premier, a wildcat in the Gould Hills district of Kern County, but it will be another two or three months before the bit in this hole is deep enough to reach an interesting stage. Badger Co. has resumed drilling on its No. 1 Tejon, a wildcat in the Wheeler Ridge area in the extreme southern end of the San Joaquin Basin, and the formation was reported as a gray sand at 5,150 feet a few days ago. Alta Oil Corp. is rotating in a gray sandy shale at 6,230 feet in its Union Avenue wildcat and, while only minor showings have been logged, this well is nearing the critical depth. Alta's wildcat is in the Union Avenue area between the Fruitvale and Mountain View Fields and approximately 2 miles west of Union Oil Co.'s K.C.L. Milham Exploration Co. spudded in No. 1 Connolly, a wildcat in San Joaquin County, late in

(Continued on Page 80)

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# Several New Operations in New Mexico Area; Deep Test for Crooks Gap Structure, Wyo.

By TOLBERT R INGRAM
Staff Correspondent, Rocky Mountain Area

DENVER, Colo., Feb. 12.—A new location in the Jal area in southeastern New Mexico by the Continental Oil Co. has brought the number of active operations in that pool up to seven. Western-Anton's No. 1 Conditt, upon coring deeper after shutting off a big flow of gas, brought out a core bleeding with oil. The oil and water in Stovall & Marshall's test in southern Eddy County was exhausted and the hole is drilling deeper. One new operation in the Compton Pool in Eddy County and another in the Kutz Canon district in San Juan County are spudding. Two new operations were reported in McKinley County.

Texas Co. completed its No. 5 Parkinson on the Iles Dome in Moffat County, Colorado, with an average flow of 117 bbls. per hour for the first three and one-half hours. A test in the Lyons district in Boulder County has more water and may be abandoned.

Monongahela Oil Co. has rotary rig up for a deep test on the Crooks Gap structure in Fremont County, Wyoming. Three wells in Carbon County fields are at interesting stages and one new operation spudded in Converse County.

In Montana, one completion was reported in the Cut Bank Field in Olive Oil Co.'s No. 1 Winkler, which swabbed 80 bbls. first 20 hours. Texas Co. has one near completion in its No. 1 Haggerty, which has 2,000 feet of oil in the hole. One new operation spudded in the Box Elder district in Hill County.

In Utah, Ramsey Petroleum Co.'s test on the Last Chance structure skidded the rig and started a new hole.

## NEW MEXICO

### Lea County

Another location in the Jal area was released the past week in Stanolind Oil & Gas Co.'s No. 29-B Farnsworth, C SW SW Section 7-26-37, half a mile to the northeast of No. 13 Farnsworth, which was drilled in 1929 by Midwest Refining Co. and completed at 3,127 feet for 35,000,000 feet of gas first 24 hours. This is the first well to be drilled in the section, although there is an oil well on the section to the north. Cellar and pits have been completed.

Western-Anton's No. 1 Conditt, C SW SW Section 12-25-36, which recently killed a big flow of gas at 3,349 feet, is coring in lime at 3,366 feet. A test through the drill stem at 3,351-54 feet yielded a show of oil and 1,500,000 feet of gas. At 3,359 feet a bleeding core was withdrawn from the hole. The same interests are preparing to drill another well in this section as soon as No. 1 Conditt is completed. Location has not yet been made.

Continental Oil Co.'s No. A-24 No. 1 Ascarate, C NW NE Section 24-25-36, is waiting for lease and permit to drill. Humble Oil & Refining Co.'s No. 4-A Lindley, C NW NW Section 24-25-36, is drilling at 2,825 feet in anhydrite, and Barnsdall Oil Corp.'s No. 1 Forrest, NE NW SW Section 24-25-36, is building derrick. Texas Co.'s No. 1-B Shepherd, NW cor. SW Section 5-26-37, an old well drilling deeper from 3,262 feet, is shut down for orders at 3,308 feet in hard white lime and flowing 130 bbls. of oil, 130 bbls. of water and 3,000,000 feet of gas per day. Texas Co.'s No. 2 Moberly, C NW SE Section 8-26-37, cemented the 12½-inch at 500 feet with 175 sacks and is waiting.

Gypsy Oil Co.'s No. 1 La Munyon, C NE NE Section 28-23-37, Cooper area, is shut down at 135 feet in sand and moving in a larger spudder. The 20-inch was set at this depth.

Noble Brothers' No. 1 Shell-State, SE cor. NW Section 24-18-37, on the west side of the Hobbs Pool, has derrick completed and is rigging up.

Texas Co.'s No. 4-A State, C Lot 7, Section 2-21-33, Lea area, is shut down at 3,653 feet in white lime after cementing 5⅛-inch at 3,649 feet with 50 sacks, and its No. 2-B Lynch, C SE SW Section 27-20-34, is shut down at 1,620 feet in anhydrite after cementing 8¼-inch at 1,607 feet with 100 sacks. Texas Co.'s No. 1 Lea, SW cor. NW Section 14-20-34, is rigged and ready to spud.

### Eddy County

Texas Co. is reported to have sold to Harry Leonard, of Roswell, its acreage in the Artesia Field, upon which are six producers, and the Robinson permit in the Caprock area upon which there are two wells.

Stovall & Marshall's No. 1 Mock, C SE SE Section 29-24-27, in the Black River district in southern Eddy County, which showed for a small producer at 2,338 feet, averaged 7 bbls. of oil and 2 bbls. of water on a pumping test and it was decided to go deeper. It is drilling at 2,345 feet in limey sand and the oil and water have been exhausted.

R. D. Compton's No. 6 Brainard, SE cor. Section 5-18-27, Compton Pool, which was rigged ready to spud last December, is drilling at 75 feet in sand. Compton's No. 6 State, SW NE SW Section 15-16-23, upper Cottonwood district, is shut down for water at 922 feet in sandy lime. Pecos Valley Gas Co.'s No. 2 Wilson, SE NE NE Section 5-19-28, is drilling at 660 feet in lime and anhydrite. It had fresh water at 190 and 460 feet and the 8¼-inch is at 482 feet.

Leonard & Barnsdall's No. 1 State, SW cor. Section 21-17-29, Jackson area, which gauged 1,635,000 feet of gas per day at 2,265 feet, set 6⅝-inch at 2,302 feet, which is the total depth, and is waiting. Grayburg Oil Co.'s No. 5 Burch, C SW NE Section 19-17-30, Maljamar area, cemented 10-inch on bottom at 483 feet and is waiting.

Ralph Spearow and others' No. 1 McClelland, SW NW NE Section 22-22-23, Indian Creek district, in western Eddy County, is bottomed at 4,865 feet in black lime and is rerunning the 8¼-inch after pulling that string to remove a split joint. Pecos Valley Drilling Co.'s No. 1 McIntyre, NW NW Section 27-23-25, Dark Canon district, is drilling at 2,770 feet in sandy lime and will lower the 8¼-inch to below 2,420 feet.

### San Juan County

Tom Irwin and others' No. 1 Brink, C NW NW Section 19-28-10w, Kutz Canon district, began spudding January 24 with standard rig. A. R. Goodale and others' No. 1 Hare, NW NE Section 23-29-11w, Bloomfield district, has rotary rig on location. In the Aztec district, J. F. Cross and others' No. 1 Wilson, SW SE Section 17-30-11w, is undereaming 6⅝-inch to set in shale at 645 feet and the Rio Grande Development Co.'s No. 2 Lanier, SE cor. NW Section 9-29-11, is testing water shutoff at 2,030 feet. Fred Barrett's No. 1 Hart, SW NW SW Section 11-29-11, landed the 5⅛-inch at 1,610 feet and is drilling at 1,615 feet in shale. Aztec Oil Producers, Inc.'s No. 1, C SE SE Section 28-30-11, is drilling at 500 feet, and Jack Amenda and others' No. 1, NE SW Section 25-30-12, is rigging up No. 30 Star. R. C. Oswell's No. 4, SW NW NW Section 34-30-11, set the 6¼-inch at 1,700 feet and has resumed. McCoy & Phillips' No. 1 Martin, NE SE NW Section 34-30-11, plugged back from 1,329 feet to sand at 1,090-99 feet and after a shot made 10 bbls. first 24 hours on the pump.

### McKinley County

Frank Weber and others' No. 2, SW NW Section 29-20-9w, Bonita district, to the west of No. 1, which made 5 bbls. at 500 feet, has rig on ground. A. C. Kittel is moving in materials to the south of the Weber well for his No. 1, NW NW Section 32-20-9.

### San Miguel County

Cabra Springs Oil & Gas Co.'s No. 1, C NE NE Section 22-12-22, Pino Mesa district, is shut down at 2,450 feet.

### Santa Fe County

Elmer Fisher's No. 1 Hill, Section 6-10n-7e, Barton district, is drilling at 1,250 feet in conglomerate, and C. C. Owen and others' No. 1 Cantwell, NW cor. Section 5-10n-9e, near Stanley, is shut down at 250 feet waiting for 15½-inch casing delayed by bad roads.

### Torrance County

Estancia Valley Carbon Dioxide Development Co.'s No. 1 Roland, NW SE SW Section 12-7n-7e, Wilcox Dome, has resumed at 435 feet after being shut down two years. It is near a well drilled by the same interests which yielded carbon dioxide gas. The company proposes to build a dry ice plant.

### Oil Men Organize

The name of New Mexico Oil Men's Protective Association was changed at the annual meeting at Artesia to the New Mexico Oil and Gas Association. C. J. Dexter, of Artesia, was elected president to succeed W. A. Nicholas, of Roswell; Harry Leonard, of Roswell, was elected secretary and treasurer to succeed William Dooley, of Artesia. Van Welch was chosen vice president. The officers and Powatan Carter and S. P. Hannifan, of Roswell; M. E. Baish, of Artesia; A. C. Brown and D. D. Bodie,

# Revised Canadian Production Figures for 1933 Show Considerable Increase

BY VICTOR LAURISTON
Staff Correspondent, Canadian Fields

OTTAWA, Canada, Feb. 10.—Official figures covering Canadian crude oil production for 1933 show that the production was considerably in excess of the earlier official estimates. Production from all Canadian fields in 1933 totaled 1,157,738 bbls. against a preliminary estimate of 1,126,100 bbls. and an actual production of 1,054,373 bbls. in 1932.

Comparative figures for the various provinces follow in bbls.:

| | 1933 | 1932 |
|---|---|---|
| New Brunswick | 8,676 | 6,408 |
| Ontario | 136,022 | 130,343 |
| Alberta | 1,013,040 | 917,622 |

The December production from all Canadian fields was 113,677 bbls. against 108,304 bbls. for the previous month and 80,841 bbls. for December, 1932. New Brunswick production in December was 571 bbls. compared with 1,031 in November; Ontario production at 9,762 bbls. compared with 10,915 bbls. in November, and Alberta production at 103,344 bbls. showed a decided gain over the November figure of 96,358 bbls.

### Drilling Operations

Further development of the Watson structure in the southern Alberta foothills west of Lundbreck will be undertaken this year by Mar Jon Oil Co. of Vancouver, which is completing a deep lime test in South Turner Valley. Mar Jon Oil Co. some time ago took approximately 2,500 acres on this structure on the advice of L. Z. Johnson, petroleum geologist. Recently approximately 14,000 acres additional were secured from Southfield Petroleum, Ltd. It is reported that Mar Jon Oil Co. has made tentative locations for two or more tests on its acreage.

The Watson structure lies a considerable distance south of Turner Valley, but is thought to be a continuation of the same foothills fold east of the Rockies. It was first reported on by E. W. Watson and has since been investigated by a number of other geologists including E. H. Cunningham Craig. Geological surveys indicate that the formations are much shallower than in Turner Valley.

A portion of the Southfield Petroleum acreage, secured a number of years ago, was subleased to Raven Oils, Ltd. Raven's No. 1 was spotted in Section 20-9-2w5, but was drilled only about 50 feet. Last year the test was taken over by F. E. Sandercook and associates of Calgary and deepened to 80 feet, where 20-inch pipe was cemented. A small gas show was met at 70 feet. No further work has been reported. Source Rock Petroleums' No. 1 was located in LSD 13, Section 21-9-2w5, east of the Raven location, but discontinued work at 60 feet, though the outfit is understood to be still on location. It is expected the Mar Jon tests will be located some distance from these wells, probably to the north. The Watson investigations indicate closure to the north in the forest reserve area in Township 12, toward the west side; the structure running south and a little east with southern closure in Township 9. Another and smaller structure is found a little farther south,

(Continued on Next Page)

of Hobbs; and K. P. Hart, of Carlsbad, were named on the executive committee.

### COLORADO

#### Huerfano County

S. W. Pressey's No. 1 Ojo, SW NE Section 10-29-69, Oak View district, is shut down at 2,450 feet.

#### Moffat County

The best well completed in Colorado for several years was Texas Co.'s No. 5 Parkinson, Non-Joint, Lot 13 (approximately N NW SW) Section 23-4n-92, on the Iles Dome. It flowed an average of 117 bbls. per hour for three and one-half hours, or at the rate of 2,800 bbls. daily, from 20 feet of the Sundance sand at a total depth of 3,384 feet. It is approximately one-half mile southwest of the company's No. 1 Iles Investment, completed last November for 1,100 bbls. initial at 3,447 feet, total depth, and is higher on the structure. After testing for three and one-half hours the new well was pinched down to 200 bbls. per day. It calls for a west offset by Stanolind Oil & Gas Co.

Stanolind Oil & Gas Co.'s No. 21-X Parkinson, NE SW NW Section 23-4n-92, topped the Sundance at 3,321 feet and is standing with 8⅝-inch cemented at 3,325 feet. This well is an offset on west to Texas Co.'s No. 1 Iles Investment.

Rocky Mountain Gas Co.'s No. 2 Bogenschultz, SE cor. Section 9-6n-91, Craig Dome, is testing at 2,752 feet after recementing liner. It is showing for a little better than 1,000,000 feet of gas per day from the first Morapas sand. It may be drilled on down to the second sand before completing.

Negotiations are reported pending between Continental Oil Co. and Texas Co. for the piping of natural gas from the Thornburg Dome to the Moffat Dome to repressure the oil wells on the last named. The Thornburg Dome lies 10 to 12 miles south of the Moffat Dome and Continental company has four gas wells in the field which were drilled by the old Marland Oil Co. Some of these wells made 30,000,000 to 40,000,000 feet per day initial when drilled in 1926, but have been shut in ever since for lack of a market.

#### Boulder County

Consolidated Smelting & Metals Co.'s No. 1 Blubaugh, SE cor. Section 20-3n-70, Lyons district, has more water at around 1,500 feet. It is shut down and may be abandoned as the hole is down to 3 inches.

#### Fremont County

Waterville Oil Co.'s No. 1 State, SE cor. NW Section 16-18-69, Phantom Canon, north of Canon City, is drilling at 2,378 feet in red shale. This test started in the red beds.

#### Montezuma County

McElmo Oil Co.'s No. 1 West, NW NE Section 31-36-17, McElmo district, is drilling at 1,500 feet.

#### Park County

South Park Oil Co.'s No. 1 Milligan, NE cor. SE Section 13-8s-76, Jefferson district, is shut down at 3,198 feet.

### WYOMING

#### Converse County

Wyoming Southern Oil Co.'s No. 1 Government, near C Section 27-32-69, Shawnee structure, which is being drilled by S. H. Keoughan on an acreage basis, is spudding with portable rotary. It is planned to go to the shallow sand at around 700 feet which showed for 1,000,000 feet of gas in a nearby hole drilled by the Phillips Petroleum Co. to work out the geology.

#### Fremont County

Monongahela Oil Co. is preparing to make a deep test of the Crook's Gap structure with rotary tools and has rig completed for its No. 1 Wisda, NE SE SE Section 13-28-93. Manning & Terry have the contract. Drilling probably will not start for about six weeks, or more, but the operators took advantage of favorable weather to get ready for spudding. The company has a block of several thousand acres on the structure and the location for its first test is near a well drilled several years ago by Producers & Refiners Corp. which encountered a show for a 25-bbl. well in the Frontier at 2,500 feet. The Monongahela test will be carried to around 4,500 feet. The company was organized a few months ago as an exploration unit and is officered by men closely identified with New Bradford Oil Co. and former officers of Midwest Oil Co. C. O. Dillard is president; A. E. Johnson, vice president; F. C. Roberts, secretary and treasurer; and A. D. Aitken and O. G. Martin, additional directors.

#### Carbon County

Earl W. Reeder, Inc.'s No. 1 Union Pacific, C SW SW Section 19-20-83, Overland Dome, has underreamed 6¼-inch and landed it on bottom at 4,050 feet and is preparing to resume. It is believed to be close to the top of the Dakota. Good shows of oil wre encountered in upper horizons.

Petrleum Exploration Co. of California's No. 2, SW SE SW Section 29-23-88, Buck Springs district, landed 12½-inch at 1,045 feet and is drilling ahead at 1,200 feet. It topped the first Wall Creek at 818 feet. The Frontier at this location is several hundred feet thick.

Ohio Oil Co.'s No. 1 Hazlett, NE NW Section 34-23-79, Allen Lake, an old gas well drilling deeper to test the Tensleep, is coring at 3,289 feet and about at the depth at which the objective is expected.

Producers & Refiners Corp.'s No. 4 Wertz, SW cor. SE Section 7-26-89, Wertz Dome, is fishing for underreamer lug at 3,070 feet.

#### Natrona County

Midway Oil Corp.'s No. 1 Boyer, SW NE NE Section 23-35-79, Midway Dome, is fishing at 4,709 feet, near the base of the first Wall Creek. The top of this marker was about 30 feet higher than in the discovery well.

#### Crook County

Dr. B. R. Kinter's No. 1 Rockford-Wyoming, NE SE Section 13-52-62, Rocky Ford district, is drilling at 550 feet.

#### Lincoln County

Superior-Wyoming Oil Co.'s No. 1-A Government, SW NE NW Section 3-26-113, La Barge district, is drilling at 400 feet.

#### Sublet County

Piney-La Barge Oil Co.'s No. 2, NE NW Section 18-28-113, Dry Piney district, is drilling at 100 feet in shale.

### MONTANA

#### Glacier County

One completion was reported in the Cut Bank Field, Olive Oil Co.'s No. 1 Winkler, E NW NW Section 35-35-6w, which swabbed 80 bbls. in 20 hours from the Cut Bank sand at 2,874-2,904 feet, the top of the Ellis being at 2,904 feet. It is located in the northwestern part of the field close to the Blackfeet Indian reservation boundary.

Texas Co. has a near completion in its No. 1 Haggerty, SE cor. Section 9-34-6w, which ran tubing and rods at 3,031 feet total depth and is preparing to test. It found the Cut Bank sand at 2,886-3,015 feet and oil rose 2,000 feet in the hole. It is a north offset to Fulton's No. 1 Haggerty, which made 106 bbls. first 24 hours. The two wells are outside locations on the western side of the field.

Texas Co.'s No. 1 State, C NE Section 16-32-5w, South Cut Bank, which is 9 miles south and east of the nearest producer, is averaging around 80 bbls. per day on the pump.

Alberta-Pacific Consolidated Oil Co.'s No. 3 Kiesel, NW cor. Section 11-34-6w, is rigging up rotary at 143 feet, and its No. 3 Matson, SW NW SW Section 14-34-6w, has spudder on location with which to complete. Last named is bot-

(Continued on Page 80)

## Canadian Fields

(Continued from Preceding Page)

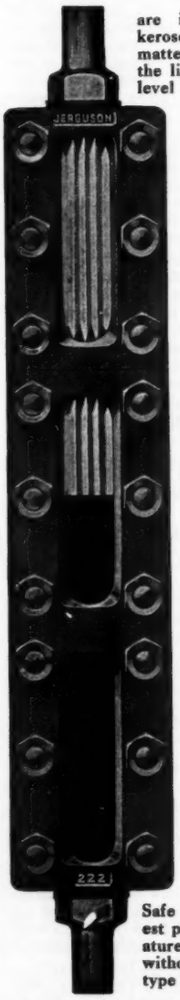
trending south and east and terminating in the southeast corner of Township 9.

#### Pekisko Test Spudded

On the Pekisko Hills structure south of Turner Valley, Pekisko Hills Co.'s No. 1, LSD 6, Section 6-17-2w5, spudded in last week. Location is on the Senator Patrick Burns "Bar U" ranch, and half a mile from the Prince of Wales "E.P." ranch near High River. Officers of the Pekisko Hills Co. are: President, J. W.


JERGUSON

REFLEX GAGES

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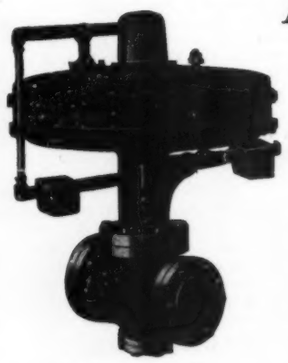

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In Section 28, South Turner Valley, Richfield Royalties' No. 1 is starting work in LSD 5, on the west side of the structure. In the same section, Mar Jon Oil Co.'s No. 1 Kindersley, LSD 10, which got the lime at 4,918 feet, is drilling below 5,285 feet and in the second porous horizon of the Madison. Pacalta Oils' No. 1, LSD 7, is below 4,350 feet, close to the Home sand, and drilling and carrying down casing.

Becker Syndicate's No. 2 Anaconda, LSD 15, is drilling below 5,505 feet, more than 425 feet in the lime. The drill is in a hard formation with a further increase in the wet gas flow. Spooner Oils' No. 5 Anaconda, LSD 1, same section, is below 3,580 feet after passing through the Stockman sand. Director Royalties' No. 1, LSD 16, is rigging for rotary test. Century Royalties' No. 1, LSD 14, is rigged up ready to spud. British Dominion Oil & Development Corp.'s No. 4, LSD 6, is working on derrick.

On the east side of the South Turner Valley structure, Northwest Co.'s No. 1 Calgary & Edmonton-Longview, LSD 5, Section 27-18-2w5, is drilling below 4,173 feet in the upper Blairmore formation, with prospects of a very deep test.

In the far south end, Highwood-Sarcee Oils' No. 1, LSD 16, Section 21-18-2w5, is drilling below 4,450 feet. Though a mile south of production and beyond the area of the Benton outcrop, the log does not indicate exceptional depth, though thickness of some sands shows variation.

In the Mercury area, Associated Royalties' No. 1 Spray, LSD 9, Section 5-19-2w5, on the west side, is making new hole below 3,310 feet. Farther south, Nolan-Hungerford Royalties' No. 1 Rand, LSD 5, Section 34-18-2w5, is resuming from 280 feet.

### Central Turner Valley

In Central Turner Valley, Okalta Oils' No. 4, LSD 8, Section 1-20-3w5, is delayed by casing trouble at 2,800 feet. The crude oil horizon above the lime is the immediate objective.

Shareholders of Calmont Oils, Ltd., have approved the sale to Royalite Oil Co. of acreage and producing wells in LSD 11, Section 29-19-2w5. The consideration is 6,500 shares of Royalite stock, of which 975 shares will go to Alberta Pacific Consolidated Oils, Ltd., and United Oils, Ltd., in return for their 15 per cent royalty interest in production. The Royalite stock together with revenue from the sale and rental of surplus drilling equipment will give the Calmont company a balance which may be utilized in drilling a test in another section.

### Moose Mountain Test

On the Moose Mountain structure west of Calgary, Elbow Oils' No. 1, LSD 11, Section 35-22-5w5, is in hard formation below 3,750 feet.

### Aldersyde Test

On the High River-Aldersyde structure, east of Turner Valley, Ranchmen's Gas & Oil Co.'s No. 1, LSD 16, Section 13-20-29w4, has resumed drilling from 6,200 feet. It encountered small oil shows and considerable gas, and a change of formation was noted at 6,185 feet.

### Border Tests

On the Twin River structure south of Lethbridge, Nordon-Roney's No. 2 Twin River, LSD 11, Section 2-2-20w4, has run some tubing but found the hole was not clear. Further acid treatment will be tried. On the Alberta end of the Reserve Dome structure, Rialto Oils' No. 1, LSD 4, Section 15-1-9w4, is making new hole at 2,964 feet.

### Shallow Field in Brooke

In Brooke Township, Lambton County, considerable shallow drilling is in prospect as a result of oil strikes in two tests drilled recently by Leo A. Wilson and associates of Sarnia. Leo Wilson's No. 1 on the Fred Aitcheson farm, Lot 23, Concession 13, Brooke Township, got a flush production around 15 bbls. The outfit was moved about 2 miles east to the Harry Watson farm, Lot 29, Concession 13, where a production of about 25 bbls. a day was secured. The second test was drilled immediately west of the line between Brooke Township in Lambton County and Metcalfe Township in Middlesex County. The area is about 3 miles southeast of Watford, and approximately 16 miles east and a little north of Petrolia. The Mosa shallow pool in Middlesex County is 10 miles southeast. While a few isolated tests had previosuly been drilled in Brooke Township, the immediate area had never been tested. The producing wells are more than 2 miles apart, so that a fairly large potential field is indicated. The Lea Wilson syndicate is planning to drill further tests, and a number of other operators are reported to be securing acreage and arranging to drill. The maximum drilling depth has been a little less than 500 feet, pays being encountered approximately 60 and 113 feet in the lime. The producing formation is the same as in the Petrolia, Oil Springs and Mosa Pools.

### Lambton Drilling

Farther west, in the Dawn Field, Lambton County, Union Gas Co.'s No. 71, NW E half Lot 23, Concession 2, Dawn Township, drilling below 1,090 feet. Union's No. 72, SE Lot 25, Concession 13, has a fishing job at 1,710 feet.

In Moore Township, S. S. Reesman Syndicate's No. 1, Kerr farm, Lot 21, Concession 1, is drilling below 510 feet with 10-inch hole.

### Kent County Tests

In the Dover Field, Kent County, Ajax Oil & Gas Co.'s No. 7, Antaya farm, Lot 1, Concession 4, Dover East Township, has been abandoned. Ajax's No. 8 is being spotted about 1,000 feet from No. 7.

In Raleigh Township, Kent County, Southern Ontario Gas Co.'s well south of Merlin is standing with the hole almost full of oil. It is reported Detroit interests are arranging to purchase the well. Farther east, Union Gas Co. is reported drilling a structure test south of the Olga wells, near the junction of Concession 10, Raleigh and the Jenner side road.

### Orangeville Wildcat

Drilling has been resumed on the Hockley Valley Oil Co.'s No. 1 wildcat test, 7 miles east of Orangeville, in Dufferin County.

### Anaconda Operations

In the South Turner Valley, Becker Syndicate's No. 2 Anaconda, LSD 15, Section 28-18-2w5, is taking production while deepening in the lime, drilling being restricted to one daylight tour owing to the heavy wet gas flow. Wet gas production is over 11,000,000 feet a day with crude naphtha recovery around 200 bbls. a day. Spooner Oils' No. 5 Anaconda is drilling in LSD 1, same section; while arrangements are being made for resumption of the Livingston Syndicate's No. 1 in Section 34-18-2w5, shut down owing to the death of William Livingston. All these tests are on Anaconda acreage.

### Saskatchewan Operations

In Saskatchewan, a number of important tests are likely to be drilled this year. The most important immediate operations are those near Lloydminster, where the Lloydminster Gas Co. has struck a commercial gas flow at 1,380 feet with about 400 pounds pressure. This is the largest and so far the only commercially important flow encountered in Saskatchewan.

Drilling for oil or gas in Saskatchewan is under the regulations of the Department of Natural Resources at Regina, with E. Swain, supervisor of mines, in charge. Drilling operations will include resumption of the test of the Trail Blazer Oil & Gas Co. at Hudson's Bay Junction. Drilling rights are reported to have been set up at Lone Rock, Maple Creek, Avonlea and Riverhurst, south of Wilcox.


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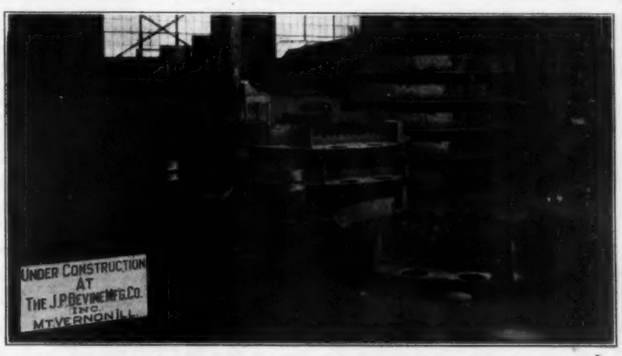



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# Wildcat Play in Liberty and San Jacinto Areas; New Activity Near Bellville, Austin County

By NEIL WILLIAMS
Gulf Coast Bureau, The Oil and Gas Journal

HOUSTON, Tex., Feb. 12.—The wildcat development play taking place in northwestern and north-central Liberty County, southwestern San Jacinto County and southeastern Montgomery, the new leasing activity which has sprung up in an area west of Bellville in northern Austin, together with the continued increasing amount of field work, both in actual drilling and in blocking and geophysical exploration, featured developments on the Gulf Coast the past week.

In the Cleveland district of northwestern Liberty County, particular interest late in the week was centered on Gulf Production Co.'s No. 2 Kirby, located 1,866 feet, or two locations south of that company's wildcat producer, No. 1 Kirby, John Pleasants Survey. At latest report, that test was drilling below 5,650 feet without having picked up the sand in which the discovery well is producing.

While this second well at 5,650 feet lacked 63 feet of being down to the level of 5,713 feet at which the first well topped the sand, based on the information that the second well was 145 feet higher on the Hockleyensis marker than the first, the sand should have been reached by this time. The top of the Hockley in the second well was reported at minus 4,609 feet and with the same interval of 853 feet which existed between the Hockley and the Cockfield in No. 1 Kirby, the top of the Cockfield in the second test should have been around 5,462 feet subsea, or 5,607 feet actual.

Brown and Wheeler's No. 1 Foster Lumber Co., Ann Holhousen Survey, 6 miles south of the Gulf discovery well at Cleveland, has definitely placed a limitation of development in that direction. It was abandoned early in the week as dry at a total depth of 6,575 feet. Of significance is the fact that no sand was found in the test. It topped the Cockfield at 6,340 feet actual. Elevation is 117 feet.

The same operators' No. 1 Goldberg, J. Eldridge Survey, 2 miles south and west of Gulf's well, late in the week was drilling sand and shale below 4,525 feet. This test holds an important key position in view of the generally expected trend of production toward the southwest. Gulf Production Co.'s No. 1 Grogan, Clayton Harper Survey, 4,000 feet north of the discovery well, is drilling around 1,500 feet.

### San Jacinto County

Northward across the Liberty County line in San Jacinto County, Weaver and Crimm and Shell Petroleum Corp.'s No. 1 Delta, Earl Lusk Survey, topped the Cockfield at 4,909 feet, or 4,670 feet subsea (elevation 239 feet). This is believed normal. The test now is drilling below 5,000 feet.

### Splendora District

Steen Drilling Co.'s No. 1 Texas Long Leaf, Walker County School Land Survey, Splendora district, southwestern Montgomery County, 7 miles west of the Gulf's Cleveland wildcat producer, still is standing with surface casing cemented at 1,419 feet.

Six miles southeast of Cleveland, in northwestern Liberty County, Harry Sample and associates have made tentative location for a wildcat in the John R. Faulk Survey. Four miles southeast of Cleveland, Turnbull and Irwin are moving in for a wildcat test on the Prichard & Blanchard acreage in the A. Whitlock Survey.

A little farther to the east but across the Trinity River, Wilcox Oil & Gas Co., another newcomer to the Gulf Coast, has taken a large block and is making a tentative location in the James Knight Survey.

Leasing throughout this area continued active during the week.

### Austin County

A flurry of excitement was created in an area west of Bellville, northern Austin County, when a wildcat being drilled by Gem Oil Co. in the S. F. Austin Survey No. 4 League, topped the Hockleyensis at 3,050 feet actual depth, or 2,853 feet subsea. This was considered by many as being substantially high although this fact is being questioned by others. At any rate, topping of the marker was followed by a play of leases and royalties with prices ranging from $20 to $35. Texas Co., Humble Oil & Refining Co., General Crude Oil Co. and Tide Water Oil Co. were among the larger purchasers. The test has been drilled to 3,428 feet, where at latest report it was shut down temporarily. It encountered sands at 3,220-50 feet, 3,344-83 feet and 3,418-22 feet but in these failed to get any important showings. The hole probably will be drilled down to the Cockfield.

### Livingston Sale

Reports that Dick Schwab had sold his interests in the Polk County Oil Co. to R. A. Josey of Houston were verified the last week. Terms of the trade were $125,000 in cash and $165,000 in oil. Holdings of the company are in the Livingston Field of southern Polk County, and consist of properties originally owned in their entirety by Mr. Schwab, discoverer of the field. The present trade gives the Josey interests complete ownership of the Polk County Oil Co.

Dick Schwab also figured in another trade the past week when he sold to Alpha Petroleum Co. 150 acres out of his block in the G. S. Thomas Survey, 9 miles southeast of the Livingston Field. On that block two wells have been drilled, both of which made considerable gas, although the first was abandoned after a number of unsuccessful attempts to complete it due to mechanical troubles. The second well, No. 2 Kirby, was completed as a gasser but made some fluid, consisting of about 50 per cent oil. It was produced only at short intervals and now has been killed and screen is being pulled to deepen. A location has been made for No. 3 Kirby, 2,000 feet east of No. 2, but drilling will be delayed pending working over of the second well. The Alpha trade involved a consideration of $200 cash and $1,000 in oil per acre for the 150 acres and in addition a well is obligated within 90 days.

### Tomball Field

Production of the Tomball Field of northern Harris County was extended over a mile to the east and some north by completion of Humble Oil & Refining Co.'s No. 1 F. J. Holderrith, C. N. Pillot Survey, as a 500-bbl. well in sand at a total depth of 5,552 feet. This brings production to a point just south of the townsite. Stanolind Oil & Gas Co.'s No. 1 Brautigan, a mile northwest of production, in Montgomery County, has been abandoned at 5,765 feet. It has been standing a couple of weeks after finding water in the producing horizon.

### Hull Dome

Continued activity is being reflected in development of the deep Jackson horizon along the south side of the Hull Dome, Liberty County. Completion of three more good wells during the week added

## Gulf Coast Fields and Wildcats

**Week Ending February 10**

**MANVEL—BRAZORIA COUNTY**

| Company, farm and location— | Remarks: |
|---|---|
| Texas Co.'s No. 7-A Belcher, 1,430 ft. S 48 deg. E, 900 ft. W 42 deg. E from NW cor. of W. T. Belcher "A" lease, H. N. Little Sur. | T.D. 5,853 ft.; P.B. 5,199 ft.; sidetracked to 5,528 ft.; P.B. to 5,176 ft.; sidetracked 5,123 ft.; drlg. shale and lime 5,175 ft. |
| Texas Co.'s No. 9-B Belcher, 2,691 ft. N 42° E from S cor. H. N. Little Sur., and 330 ft. NW at R/A from survey line | Derrick. |
| Texas Co.'s No. 4 O. F. Ewing, 415 ft. from NW line, Lot 8, and 787.2 ft. from NE line, H. N. Little Sur. | Drlg. sand, lime and boulders 3,081 ft. |
| Texas Co.'s No. 1 S. Scopal, 5,835 ft. from S line and 348 ft. from E and W lines of Lot 25, H.&T.B. Sur., Sec. 74 | Drlg. sand, shale and lime 3,728 ft. |

**STRATTON RIDGE—BRAZORIA COUNTY**

| | |
|---|---|
| Amerada Pet. Corp.'s No. 5 Seaborn, Austin-Williams Sur., 600 ft. E of No. 3 and 229 ft. S at R/A | T.D. 5,419 ft.; no report. |

**WEST COLUMBIA—BRAZORIA COUNTY**

| | |
|---|---|
| Miramar Oil Corp.'s No. 1 Hogg, Martin Varner League, 2,500 ft. S line, 50 ft. W line, 200-ac. tract | Drlg. sandy shale 2,210 ft. |

**BARBERS HILL—CHAMBERS COUNTY**

| | |
|---|---|
| McAlbert Oil Co.'s No. 2-A Higgins (W.O.), Hodges Sur. | T.D. 5,230 ft.; milling out 4,740 ft. |
| Mills Bennett Prod. Co.'s No. 1-D Barber, 75 ft. S, 65 ft. W of NE cor. | Shale 4,792 ft.; fishing. |
| Mills Bennett Prod. Co.'s No. 4 Means, 150 ft. W of No. 3, Henry Griffith League | T.D. 5,454 ft.; P.B. 4,700 ft. |
| Humble O. & R. Co.'s No. 5-B Kirby, Henry Griffith League, 928 ft. W of E line, 537 ft. N of S line of tract | Drlg. salt 2,280 ft. |
| Sinclair Prairie Oil Co.'s No. 16 Wilburn, Henry Griffith League, 150 ft. W of No. 14 | Drlg. sandy shale 4,534 ft. |
| Sinclair Prairie Oil Co.'s No. 17 Wilburn, 125 ft. N of S line, 150 ft. W of No. 16, H. Griffith League | Cmtd. cavity 1,176 ft. |
| Sun Oil Co.'s No. 15 Wilburn, 405 ft. from E, 50 ft. from W line | Drlg. salt 2,580 ft. |
| Sun Oil Co.'s No. 17 J. Wilburn, Henry Griffith League, 150 ft. W of No. 6 and 50 ft. S of N line | Pulling screen 3,772 ft. |
| Sun Oil Co.'s No. 18 J. Wilburn, Henry Griffith League, 50 ft. N of S line, 50 ft. E of W line of lease | T.D. 4,524 ft.; P.B. 2,929 ft.; sidetracking in shale and lime 3,320 ft. |
| Sun Oil Co.'s No. 19 J. Wilburn, 220 ft. E of W line, 343 ft. S of N line, Wm. Hodges Sur. | Derrick. |
| Sun Oil Co.'s No. 20 J. Wilburn, Wm. Hodges Sur., 60 ft. E of W line, 343 ft. S of N line | Cmtd. cavity 980 ft. |
| Sun Oil Co.'s No. 4 Higgins, Wm. Hodges Sur., 100 ft. W of No. 2 | Rock 971 ft.; cmtd. 18⅝-in. O.D. csg. |
| Superior Oil Corp.'s No. 3-A Barber (W.O.), Henry Griffith League | Cutting and pulling screen 5,146 ft. |
| Texas Gulf Prod. Co.'s No. 12-B Kirby, Henry Griffith League, 80 ft. S of N line and direct offset of Texas Gulf's No. 1 J. M. Fitzgerald | Drlg. sand and shale 168 ft. |

(Continued on Page 90)

ED COLLIER
Production Superintendent
Sun Oil Co., Hull, Tex.

J. R. SEWALL
Production Superintendent
Pure Oil Co., Lost Lake, Tex.

materially to the potential daily production of the new Hull area, which is now above 5,925 bbls. Of especial importance now is an outpost Jackson test being drilled by Republic Production Co. and Houston Oil Co. on their joint Dolbear fee acreage. This test, No. 150 Dolbear, is on the extreme east side of the dome and out from production, and some 5,000 feet northeasterly around the dome from Jackson play on the south side of the dome. Late in the week it was drilling in the Jackson below 4,250 feet. If production is found, it will materially strengthen the growing belief that Jackson and other deep production exists all the way around the dome and it probably will be a stimulus for the extensive new exploration and development program. Previous to the proving of Jackson sands along the south flank all production had been in shallow sands overlying the top of the dome, although the dome is one of the oldest on the coast.

#### Matagorda County

Skelly Oil Co.'s No. 1 Cobb, M. Cummings Survey, wildcat on a geophysical block north of Van Vleck, northern Matagorda County, topped the Heterostegina zone of the Oligocene at 6,190 feet with elevation of 66 feet. A thickening of beds between the Discorbis, topped at 5,767 feet, has discounted the previously reported highness of the test. Late in the week the test was drilling below 6,650 feet with indications it might be running about normal.

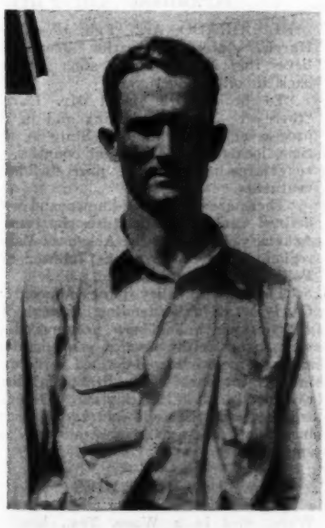
Continental Oil Co. still has been unsuccessful in making a well in its No. 1 Boker, located on the Citrus Grove geophysical prospect in southwestern Matagorda County. This test, originally drilled to a total depth of 6,567 feet, is in sand at 6,000 feet. to which it was plugged.

#### Hardin County

Continental Oil Co. has been particularly active within the past several weeks in leases and has just taken a 30-day option on a block of 4,000 acres in Hardin County, and another block of some 13,500 acres in Jefferson Davis Parish, Louisiana. On the former the company agrees to pay $100,000 cash and start a test within 90 days. On the Louisiana block, which is just south of Welsh, shooting crews now are at work, and if results justify a test will be started within 90 days. This block formerly was held by Pure Oil Co., which company in 1929 drilled a deep dry hole.

#### Southern Louisiana Surveys

There has been no let-up in geophysical and leasing activity which has been going on in southern Louisiana, particularly in Beauregard Parish and northern Calasieu Parish. Between 20 and 25 geophysical crews now are at work in that area and in adjoining parishes to the east.



R. B. PUGH
Production Superintendent
Yount Lee Oil Co., Barbers Hill, Tex.

Turnbull & Irwin have abandoned as dry their No. 1 Kirby Lumber Co., J. J. Pemberton Survey, Tyler County. This wildcat, which went to a total depth of 4,818 feet, topped the Cockfield at 4,410 feet (elevation 88 feet). Another much watched wildcat abandoned was Humble Oil & Refining Co.'s No. 1 Henderson on the Ferguson Crossing Dome of Grimes County. It went to a total depth of 6,131 feet, where drill stem was stuck. It was located three-quarters of a mile southeast of the first test drilled on the dome by the same company and which was abandoned in salt.

#### Coleto Creek

In the Coleto Creek district of western Victoria County, lower Gulf Coast, John F. Camp's No. 2 Maurer has been abandoned after testing salt water in the 4,400-4,500-foot horizon, in which two wet gassers previously were completed in the area. Bottom of the Maurer test is 4,500 feet. Houston Oil Co. and C. W. Markle have started drilling in their respective tests in the area.

## Kansas Fields

(Continued from Page 63)

SW cor. NW Section 28-19-1w, pumped 411 bbls. in 24 hours in a potential test and was completed. Viola lime had been acidized at 3,424-30 feet.

Gleason and others were drilling at 450 feet in No. 1-B Hamilton, NW SW SW Section 28-19-1w. Apex Oil Co. was rigging up rotary for No. 4 Knudson, C E half W half SE Section 23-19-2w. Stanolind Oil & Gas Co. was rigging up No. 6 Lovett, SW SE SW Section 13-19-2w.

#### Rice County

Wright & Day were moving in material for No. 1 Gregg, SE cor. NW Section 27-21-7w, Rice County.

Gypsy Oil Co. completed No. 2 Christopher, NW NE NE Section 6-20-9w. It pumped 1,453 bbls. in 24 hours in a potential test, from Siliceous lime at 3,241-46 feet. It had not been acidized. No. 3 Christopher, SE SE NE Section 6-20-9w, is represented by a rig.

Gypsy Oil Co.'s No. 2 Malone, SE cor. NW Section 18-20-9w, had Siliceous lime at 3,316-23 feet. It flowed and swabbed 360 bbls. the first four hours, an unusually large showing. Same company made location for No. 1 E. Malone, SW cor. NE Section 18-20-9w.

Mid-Kansas Oil & Gas Co. got a 5,000,000-foot gas production at 2,274 feet in No. 1 Proffitt, NW cor. SE Section 18-20-9w, and the well was shut down for orders. Lebow and the Texas Co.'s No. 2 Callis, NW SW SE Section 16-19-9w, had 1,500 feet of oil in the hole from Siliceous lime at 3,227-35 feet. Ramsey and others completed No. 1 McFarland, SW NE SE Section 31-19-9w, Chase townsite. It made a potential production of 924 bbls., 5 per cent water, after an acid treatment at 3,226-44 feet.

Ramsey and others had rig up for No. 1 Johnson, Block 24, Chase townsite, 80 feet from north line and 240 feet from west line, SW Section 31-19-9w.

Slick, Pryor & Lockhart, Inc., had 1,800 feet of oil in the hole in No. 1 Habiger, NE NW NE Section 27-18-10w. Five-inch casing was set on top of quartzite at 3,234 feet and the hole was bottomed at 3,243 feet. The crew was making preparations to test.

Smith & Ash and others had rig on the ground for a wildcat test, No. 1 Wilkins, SE cor. Section 11-17-10w.

Dutch Oil Co. has abandoned the location for No. 1 Phillips, C NE NW Section 15-15-1e, Dickinson County, after having spudded in.

Beardmore, Palmer and Gypsy Oil Co.'s No. 3 Wieland, SW SE SE Section 32-12-16w, Ellis County, found a pay at 3,106-28 feet. The well produced 4 bbls. per hour. It will be acidized.

Stanolind Oil & Gas Co. completed No. 2 Gerlof, C NW NW Section 16-20-11. It had Siliceous lime at 3,290-95 feet, which yielded a potential production of 189 bbls. in 24 hours.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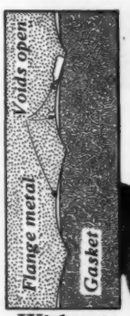


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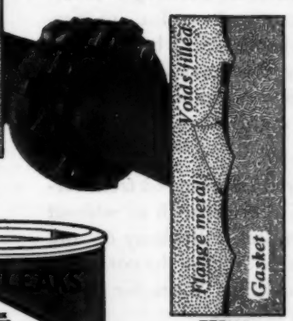


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## California Fields

(Continued from Page 74)

January and fairly good footage has been logged. It will be 30 days before sufficient depth has been reached to justify more than passing interest.

### Long Beach

Locations have been staked for 10 wells in the Long Beach Field, in addition to the starting of corrective work on several producing projects. New wells are being started by R. R. Bush Oil Co., Concord Oil Co., E. M. Harrison, Merco Oil Co., H. Perlman, Rafair Oil Co., Trinity Oil Co., Utah Oil & Drilling Co., Will-Daw Oil Co. and Rawco, Inc. Union Oil Co. is rigging up rotary drilling equipment in No. 14 Long Beach Community preparatory to redrilling and deepening from 4,000 feet to the Brown zone. Remedial work is also being planned on No. 13 Long Beach Community. The starting of 10 new wells in the Long Beach Field is of importance, as this field was discovered more than 12 years ago. During the past year or so, operators have undertaken considerable reconditioning work as some wells were plugged back and others deepened. During 1933 several wells were whipstocked out beneath the Long Beach Cemetery, in the center of the field, and in most instances satisfactory production was developed. There is still a considerable amount of reconditioning work under way in the Long Beach Field and we may anticipate further efforts during 1934.

**IMPORTANT SOUTHERN CALIFORNIA WILDCATS**

| Company, well and location— | S.T.R. | Depth | Status |
|---|---|---|---|
| Palm Ridge Oil Co., No. 1 Palms, Los Angeles Co. | 2- 2-15 | 7,150 | suspended |
| Clayton, G. L., No. 1 Clearwater, Los Angeles Co. | 31- 3-12 | 2,573 | sd. sh. drilling |
| Pacific Gulf, No. 1 Athens, Los Angeles Co. | 19- 3-13 | 6,034 | suspended |
| Pacific Dev. Co., No. 1 Watts, Los Angeles Co. | 16- 3-13 | 3,902 | suspended |
| Dominguez Oil Co., No. 1 Dominguez, Los Angeles Co. | 34- 3-13 | rig | suspended |
| Quinn, J. B., No. 1 Dominguez, Los Angeles Co. | 3- 4-13 | mtl. | building rig |
| Mutual Oil Co., No. 1 Dominguez, Los Angeles Co. | 3- 4-13 | 3,012 | sd. sh. drilling |
| Kelly & Son., No. 1 Torrance, Los Angeles Co. | 7- 4-13 | 6,435 | plug 5,770 |
| Wehrman, J. K., No. 1 San Pedro, Los Angeles Co. | 14- 5-14 | 1,488 | schist drilling |
| Nudson, T. T., No. 1 Inglewood, Los Angeles Co. | 17- 2-14 | 211 | sd. drilling |
| Scientia Oil Co., No. 1 Inglewood, Los Angeles Co. | 7- 2-14 | rig | suspended |
| Oakes & Mead, No. 1 Lyndwood, Los Angeles Co. | 31- 2-12 | 4,940 | suspended |
| Community Oil Co., No. 1 Montebello, Los Angeles Co. | 34- 1-11 | 5,490 | redrill 5,408 |
| Universal Consd., No. 2 Montebello Deep, Los Angeles Co. | 5- 2-11 | 6,400 | sd. sh. drilling |
| Universal Consd., No. 3 Montebello Deep, Los Angeles Co. | 5- 2-11 | 6,360 | sd. sh. drilling |
| Texas Co., No. 1 Montebello Deep, Los Angeles Co. | 6- 2-11 | 2,615 | sd. sh. drilling |
| Standard, No. 1 Montebello Deep, Los Angeles Co. | 6- 2-11 | 2,240 | sd. sh. drilling |
| Midfield Oil Co., No. 1 Pico, Los Angeles Co. | 19- 2-11 | 2,016 | suspended |
| Frontier Oil Co., No. 1 Pico, Los Angeles Co. | 7- 2-11 | .... | material |
| Rex Anglin Dev. Co., No. 1 Los Nietos, Los Angeles Co. | 28- 2-11 | 150 | test spud |
| Signal Pet., No. 1 Puente, Los Angeles Co. | 14- 2-10 | 4,908 | suspended |
| Eldorado Pet., No. 1 Puente, Los Angeles Co. | 30- 2-9 | 3,030 | cleaning out |
| Barstow Oil Co., No. 1 Saugus, Los Angeles Co. | 35- 5-16 | 2,136 | cleaning out |
| Alpha Oil Co., No. 1 Calabasas, Los Angeles Co. | 22- 1-18 | 1,317 | suspended |
| Alexander, W. L., No. 1 Sunland, Los Angeles Co. | 7- 2-14 | 368 | sd. drilling |
| Marble, Willard, No. 1 Van Nuys, Los Angeles Co. | 6- 2-16 | 2,760 | suspended |
| Black Eagle Oil Co., No. 1 Huntington, Orange Co. | tideland | 3,754 | sd. sh. drilling |
| Nuoil Co., No. 1 Newport, Orange Co. | 29- 6-10 | 5,990 | sd. sh. drilling |
| Recovery Oil Co., No. 1 Sunset Beach, Orange Co. | 16- 5-11 | 3,400 | suspended |
| Superior Oil Co., No. 1 Sunset Beach, Orange Co. | 19- 5-11 | 3,000 | sd. sh. drilling |
| Placentia Dev. Co., No. 1 Placentia, Orange Co. | 31- 3-9 | 4,112 | hd. sh. drilling |
| Rubens, Sy., No. 1 Atwood, Orange Co. | 19- 3-9 | 3,368 | pump water |
| Bardeen Pet., No. 1 Coyote, Orange Co. | 13- 3-10 | 3,201 | cemented |
| Spindle Top Oil Co., No. 1 Salton Sea, Riverside Co. | 25- 7-10 | 3,590 | suspended |
| Great American Pet., No. 1 Chino, San Bernardino Co. | 18- 2-8 | 2,645 | suspended |
| Great American Pet., No. 2 Chino, San Bernardino Co. | 18- 2-8 | 2,600 | repair rig |
| Tehama Pet., No. 1 Santa Ana Canyon, S. Bernardino Co. | 33- 2-8 | 1,160 | hd. sd. drilling |
| San Diego Gas & Pet., No. 1 San Ysidro, San Diego Co. | 32-18-2 | .... | location |

In the Playa Del Rey Field of Los Angeles Basin, Union is grading and preparing drilling site for No. 5 Vidor, scheduled to get under way early in March. In the Dominguez Field John B. Quinn is erecting a rig over No. 3 Dominguez, an old well abandoned by Marland Oil Co. several years ago. Shell redrilled and deepened No. 29 Reyes, and this former upper zone producer was returned to production flowing 515 bbls. of 29.1 gravity oil and 320,000 feet of gas per day from 4,535 feet. Late in the week Commercial Petroleum Co. completed No. 1 Kreyssler in the Long Beach Field, brought in on a compressor doing 420 bbls. per day from 5,998 feet. Standard is running three strings of tools in the West Coyote Field and while three additional locations have been staked, it is not likely this trio will be spudded in until drilling is concluded on the wells under way. Several reconditioning jobs have been started in the Santa Fe Springs Field during the past few weeks, in addition to No. 46-A Santa Fe, spudded by the General Petroleum. Continental Oil Co. has drilled out cement following the landing of 9-inch casing in No. 32 Bixby, in the Seal Beach Field, and should begin drilling within a few days. Considerable interest is being manifested in Thomas Kelley & Sons' No. 1 Del Amo, a wildcat in the Torrance-Wilmington district of Los Angeles Basin in Section 7-4-13. A formation tester has been run, bottomed at 6,433 feet and plugged back to 5,770 feet, but the results were negative. This well is in an area where stringers of oil sand have been reported from time to time and, while the well is not given any great chance by many operators, there is always a possibility of a new field being discovered.

## Rocky Mountain Area

(Continued from Page 76)

tomed at 2,941 feet and the Cut Bank sand showed saturation at 2,936-41 feet. Dunstall and others' No. 1 Kennerly, E NE NW Section 22-34-6w, cemented the 10¾-inch at 630 feet and is drilling at 1,100 feet. R. C. Jeffries' No. 1 Clark, C SW SW Section 3-34-6w, is drilling at 2,300 feet, and the Par Oil Co.'s No. 2 Haines, SE cor. SW Section 2-34-6w, is underreaming and carrying the 8⅝-inch at 2,760 feet.

Santa Rita Oil & Gas Co.'s No. 1 Whetstone, SE cor. Section 27-35-6w, is drilling at 1,300 feet, and its No. 2 Cardwell, C Lot 4, Section 15-35-6w, is running the 6⅝-inch at 2,837 feet. Last named had a show of oil at 2,832 feet. Santa Rita's No. 3 Tribal, C NW NW Section 15-35-6w, is drilling at 2,200 feet, and its No. 3 Yunck, C SE SW Section 14-34-6w, is drilling at 2,300 feet.

R. C. Tarrant's No. 2 Britton, SW NW SE Section 14-34-6w, is shut down for orders at 2,902 feet, and his No. 3 Britton, C NE SW Section 12-34-6w, is standing rigged. Tarrant's No. 2 Haglund, Sr., C NW NW Section 13-34-6w, is drilling at 2,650 feet, and his No. 1 Winkler, C SW SW Section 23-35-6w, has drilled up bailer and is ready to make new hole at 2,530 feet.

Texas Co.'s No. 1 Antrim, C Lot 4, Section 27-35-6w, is rigged and ready to spud, and its No. 1 Purdy, SE cor. SW Section 35-35-6w, set the 7-inch at 2,839 feet and is waiting for spudder to drill in. The same company's No. 1 Yunck, W NW SW Section 14-35-6w, is drilling at 1,940 feet.

Ohio Oil Co. is reported to have opened an office in Cut Bank and to have brought in some geologists and lease men. This is taken as an indication that it will enter the Cut Bank area.

### Teton County

R. C. Tarrant's No. 1 Porter, SE cor. NE Section 35-27-5w, Pendroy district, is shut down at 1,950 feet for 8¼-inch pipe. The 6¼-inch was pulled from 1,900 feet and the hole reamed to bottom for the 8¾-inch.

### Liberty County

Harold Hayes and others' No. 1 Strode. NW SW Section 3-36-4e, Sweetgrass Hills, is drilling at 980 feet (cor.).

### Hill County

An operation not heretofore reported is the Northwestern Utilities Co.'s No. 1 State, C NW NE Section 16-32-17, Box Elder district, which spudded January 17 and shut down at 100 feet to complete rigging. The Independent Natural Gas Co.'s No. 1, NE SE Section 9-32-17, is drilling at 1,238 feet in the Eagle sandstone.

### Gallatin County

Ben W. Ryan's No. 1 Tice, NE cor. Section 28-1n-2e, Three Forks district, is shut down at 1,090 feet for boiler repairs, and the Montana Gas & Petroleum Co.'s No. 1 Adams, SE cor. Section 36-2n-1e, is rebuilding rig recently blown down. Total depth of last named is 1,785 feet.

### UTAH

Ramsey Petroleum Co.'s No. 1 Weightman, SW NE SW Section 18-26-7e, Last Chance structure, Emery County, which has been delayed at 300 feet with a bad fishing job, has abandoned the old hole, skidded rig 20 feet and started new hole. This important test is being drilled under an agreement with the American Oil Corp.

## Harris' Confidence in Arkansas' Oil Future

EL DORADO, Ark., Feb. 10.—C. E. Harris, state conservation agent, believes that Arkansas will stage a comeback in oil production.

"To begin with," said Mr. Harris, "there are 36 wells drilling and in the process of drilling in this State at this time, located in 15 different counties. A very large per cent are pure "wildcat" ventures.

"There are many well-known and well-defined geological structures in central Arkansas, known as the Arkansas Valley region, in proximity to the Johnson and Polk County gas fields.

"There is a valley lying adjacent to Cawley's Ridge extending through six counties which has been pronounced as very favorable by several geologists besides many other well-defined structures in different parts of the State. I believe that out of all this Arkansas discoveries will be made that will add to the prominence of Arkansas as an oil and gas state."

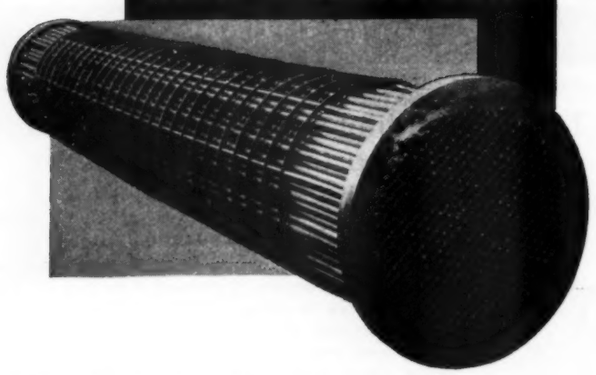
### J. D. HUNT DIES

J. D. Hunt, well-known oil operator of Waco, died in a Waco, Tex., hospital from heart failure on February 2. He is survived by his wife and four sons and three brothers.

ALLEGHENY STEELS IN THE PETROLEUM INDUSTRY

☆ ALCO ☆

HEAT EXCHANGERS



THIS bundle of seamless tubing is an inside view of an Alco Heat Exchanger manufactured by the Alco Products, Inc., of New York City. These tubes are made by the exclusive Allegheny forged, drawn and annealed process which assures a tubing that is not only scaleless but more durable and easier to fabricate.

Exchanger Tubes are manufactured from carbon steels, 4 to 6% chrome, with or without molybdenum or tungsten, Allegheny 66 and Allegheny Metal, depending on the corrosion and temperature condition. Write for folder describing this new process.

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ALLEGHENY PRODUCTS:—SHEETS for Automobile Bodies, Metallic Furniture, Deep Drawing . . . ALLEGHENY METAL . . . ALLEGHENY ALLOYS . . . ELECTRICAL SHEETS . . . STEEL CASTINGS . . . SEAMLESS TUBING . . . BOILER TUBES . . . PIPE

# TECHNICAL QUESTIONS ANSWERED

By Charles K. Francis, Ph. D., Technical Editor

This department of The Oil and Gas Journal is devoted to the manufacturing branches of the oil industry.

Those connected with the refining of crude petroleum, the manufacture of natural gasoline and closely allied industries are invited to submit their problems to Dr. C. K. Francis, technical editor. The department was created for the purpose of aiding managers, superintendents, engineers, chemists and all those engaged in the various phases of plant operation; also those connected with marketing and utilization of petroleum products.

Questions should be submitted in as much detail as possible.

Inquiries must be signed but only the given initials will be printed. The source of the question is considered to be confidential

Questions requiring a discussion of patents, the use of intricate formulas, extended computations, or cost estimates cannot be considered.

When the matter is of general interest the reply will be published within a reasonable time.

## The Principles of Blending and Compounding of Lubricants

**I would appreciate very much your giving me full particulars on the process of blending or compounding of lubricating oils. Would you also give me a list of the books on the subject?—J. A. K.**

The blending of petroleum liquids may require considerable experience and technical data. The simplest method is to mix two products for a gravity specification. This is well illustrated in making a commercial gasoline. Endpoint and other properties are controlled in the process of distillation and then the mixture for the commercial product is made from possibly several lots on the basis of gravity of each liquid. There are several methods for making the necessary calculation, one of which may be illustrated. This is the well-known rectangle method.

The stocks to be blended are 70 and 52 gravity to make a product of 59 gravity. There are 48 inches of 52 gravity stock in a tank, so the question is: How many inches of 70 should be added to the 52 stock to make a 59 gravity gasoline? Lay off a rectangle, place 70 in the upper left corner, 52 in the lower left, and 59 in the center. Place the difference between the given numbers at the desired number in the right hand corners at the end of the corresponding diagonals. These subtractions show the number of parts of the stock at the opposite corner, on the corresponding horizontal lines of the rectangle, to be used for making the blend.

| | | |
|---|---|---|
| 70 | | 7 |
| | 59 | |
| 52 | | 11 |

However, there are 48 inches of 52, so $\frac{48}{11} = 4.36$, therefore 52 is equivalent to $4.36 \times 11$ and $4.36 \times 7 = 30.52$. Hence, if 30.52 inches of 70 gravity stock are added to 48 inches of the 52 stock, 78.52 inches of a 59-degree A.P.I. gravity will be obtained.

Greater accuracy may be obtained if the A.P.I. gravities are converted to specific before solving. This is desirable when large volumes of high gravity stocks are involved. All petroleum liquids, when the volume is brought to the same temperature or the volumes corrected to the standard temperature of 60° F., may be blended for gravity by this rule.

The blending of lubricating oils is usually made to comply with a viscosity specification. There are the other properties, such as pourpoint, flash, etc., to be considered, but when many variables are involved, they are brought under control in the primary stocks.

Blending is simple mixing. Compounding is frequently used in the sense that it means simply blending, but the industry uses the word in a special or technical meaning. Lubricating oils, as found on the market, are derived from mineral, animal and vegetable oils; it is the proper blending of these that is called compounding. A very small part of the motor oils are compounded. The compounded oils are largely used in power plants. Marine engine oils and cutting oils are other examples. Compounded oils are well adapted for lubricating steam engines operating with wet steam.

Compounding may be done with either a fixed oil (vegetable or animal oil), such as acidless tallow oil. The quantity used may range from 4 to 15 per cent, the normal addition being about 6 per cent. The fixed oil should be selected with great care, so expert chemical inspection is necessary if a high grade lubricant is to be made.

The blending of oils for viscosity is much simplified if use is made of a chart, a good form of which was published in The Oil and Gas Journal, February 9, 1928. A limited supply of this chart is available in the form of a special printing on heavy paper.

Books on lubricating oils, which explain compounding and the varieties of mineral lubricating oils, are obtainable through the Book Department of The Oil and Gas Journal. The Practice of Lubrication, Thomsen, is complete, covering origin, properties, testing, selection and use. A practical book, Power Plant Lubrication, Osborn, covers the essentials. Lubrication and Lubricants, by Archbutt and Deeley, is a standard work.

## Natural Gas as Possible Source of Synthetic Gasoline

**The preparation of gasoline from gas oil and other heavy oils depends upon the breaking down of a large molecule. Why cannot the process be reversed and build up gasoline from the smaller molecule such as found in natural gas?—B. W. R.**

As a rule, it is much easier to tear a thing apart than it is to build it. We know that the longer and heavier molecules, such as those present in the hydrocarbon oils, are easier to separate or crack than the simpler groups. The fact that in all cracking operations, as now practiced in the petroleum refineries, the processes in operation produce both light and heavy products, suggests possibility of making heavy products from simple compounds. The hydrocarbons of the petroleum oils do not split in the middle, to form two uniform products of lighter character than the original oil; a small portion of a very heavy product is formed, such as tar and coke, together with the light material. Because of the enormous volumes of natural gas that are available, many investigators have been encouraged to work with this gas in an effort to make liquid products.

The first important advancement was the conversion of acetylene to benzene. Other hydrocarbons of the aromatic group have been made. There exists a voluminous list of references on the subject. A recent report, R. I. 3,143, October, 1931, of the U. S. Bureau of Mines, by H. M. Smith, Peter Grandane, and H. T. Rall, gives a description of experimental work on "The Production of Motor Fuels From Natural Gas." This report mentions the important references.

A summary of the work is quoted from the Bureau of Mines report, as given on page 3:

"In order to have a full understanding of the reactions involved in this synthesis, it is necessary to consider many factors, the most important of which are temperature and gas velocity. Other important factors are size, heat conductivity, and composition of the reaction tube; effect of preheating; temperature effects on the cracked gas; and type of flow, whether streamline or so that the data presented in this report represent only the effect of heat (2,192° F.) and time (0.5 to 4.2 hours) of contact. Two types of runs are reported: (1) The pyrolysis of substantially pure methane in unpacked tubes, and (2) the pyrolysis of methane mixed with other gases.

"The following general results are based on the work herein reported. The best average yields so far obtained from 1,000 cubic feet of methane under suitable pyrolytic conditions are approximately 0.3 gallon of light oil, largely benzene, 2.5 pounds of liquid tar containing about 35 per cent of naphthalene and anthracene, and 65 per cent of unknown hydrocarbons. In addition, there remains about 1,200 cubic feet of gas containing 710 cubic feet of methane, 440 cubic feet of hydrogen, and 25 cubic feet each of ethylene and acetylene. This residue gas has a calorific value of 775 gross B.t.u. per cubic foot at 60° F. and 30 inches of mercury.

"The presence of small amounts of ethane (5 to 15 per cent) as generally occurs in natural gas, increases the yield of liquid products markedly. Inert diluents, such as nitrogen, have no adverse effect unless present in large amounts. Hydrogen tends to depress the yield, whereas acetylene and ethylene cause an increase. Since these last three gases are not present in natural gas, their action need not be considered except as they may affect the different equilibriums which are probably established consecutively as the gas passes through the heated reaction tube."

It appears from all work done that the cracking reaction has advanced too rapidly for gasoline production, the tendency being to form heavy oils and aromatics. Should it be found possible to control the reaction natural gas will produce large volumes of gasoline.

## Viscosity Index Is Function of Viscosities at 100° and 210° F.

**Would you be so kind as to advise the clear and concise meaning of the term viscosity index in connection with lubricating oils?—O. B. B.**

An explanation of viscosity index, and its application, was given by Davis, Lopeyrouse and Dean, in The Oil and Gas Journal, March 31, 1932, page 92. The term was first proposed by Dean and Davis for the classification of lubricating oils with respect to viscosity changes at different temperatures. The viscosity-temperature coefficient is expressed as a simple function of its Saybolt Universal viscosities at 100° and 210° F., which is called viscosity index, expressed from 0 to 100.

The numerical values may be calculated from formulas, but the simplest method is to use the chart illustrated in the reference.

Typical viscosity indexes have been given by these authors for lubricating oils made from various crude oils. These are:

TYPICAL VISCOSITY INDEXES LUBRICATING OILS

| Crude type— | Viscosity index |
|---|---|
| Gulf Coast | 0 |
| Peru | 20 |
| Colombia | 40 |
| East Texas | 60 |
| Mid-Continent | 80 |
| Pennsylvania | 100 |

## Lubricating Oils Graded for Color by Numbers and Letters

**Will you please tell me what are the N. P. A. colors for neutrals and bright stocks?—C. E. A.**

The practice in the United States is to indicate the colors of lubricating oils by numbers and letters which are equivalent to colored glass slides, the comparison being made by means of the Union colorimeter. The lighter colors are shown in numbers and the darker shades in letters, according to the practice of the industry. The cylinder stocks and bright stocks are usually D or E color.

The corresponding values as found by the Lovibond tintometer, are shown in the table.

SYSTEMS FOR INDICATING COLOR OF LUBRICATING OILS

| Trade color— | Union colorimeter Letter | Union colorimeter Number | Lovibond Value 1" Cell Red | Lovibond Value 1" Cell Yellow |
|---|---|---|---|---|
| Lily white | G | 1 | 0.12 | 2.4 |
| Cream white | H | 1.5 | 0.60 | 8.0 |
| Extra pale | I | 2 | 2.5 | 26 |
| Lemon pale | K | 3 | 6.9 | 32 |
| Ex. orange pale | L | 3.5 | 9.4 | 45 |
| Orange pale | M | 4 | 14 | *50 |
| Pale | N | 4.5 | 21 | *56 |
| Light red | O | 5 | 35 | 93 |
| Dark red | P | 6 | 60 | *60 |
| Claret red | Q | 7 | 60 | †106 |
| ..... | R | 8 | 166 | 64 |
| Extra light cylinder | A | A | 10.2 | 29 |
| Light cylndr. | D | D | 21.0 | 31 |
| Med. cylndr. | E | E | 39.0 | 56 |

*Add Blue 1,180 series 0.55.
†Add blue 1,180 series 1.8.

The American Society for Testing Materials uses the same numbers as the National Petroleum Association when the determination is made by means of the Union Petroleum Colorimeter. The colors of the National Petroleum Association falling between whole numbers are frequently designated plus or minus; as 2 plus or 3 minus and also modified by such words as "lighter than," "darker than," etc.

This is a typical installation of a McCormick-Deering Power Unit on a well-pumping job. Note the special natural gas carburetor.

# Only $9 a Month for Pumping

## *How Does That Strike You for Economy?*

THE savings that McCormick-Deering Power Units effect in the pumping of oil wells are so remarkable that no oil man can afford to overlook them. The Republic Petroleum Co., Ltd., Long Beach, Calif., in its letter quoted at the right, reports an operating cost of only nine dollars a month per well for fuel and oil—*a saving of $100 and up*—with McCormick-Deering Power Units burning natural gas. This is typical of reports from other users.

Investigate McCormick-Deering Power Units and see how they can reduce your own pumping costs. There are four sizes—power range from 30 to 52 h.p. They are backed by the same high standards of manufacture and service that have made International Trucks and McCormick-Deering Industrial Tractors so popular in the oil industry for many years.

When you need crawler-type tractor power for the heaviest kind of work be sure to ask about McCormick-Deering Trac-TracTors which are built in three models, including one with Diesel engine.

INTERNATIONAL HARVESTER COMPANY
OF AMERICA
(*Incorporated*)
606 So. Michigan Ave. Chicago, Illinois

H. H. Maddren of the Republic Petroleum Co., Ltd., owner of eight McCORMICK-DEERING Power Units, says:

"In February, we installed two of your McCormick-Deering Power Units on our deep wells in Long Beach Field, which have proved their worth beyond our expectations.

"We were formerly paying $105 to $120 per month per well for lifting expense, as against our present operating cost of approximately $9 per month for natural gas fuel and lubricating oil on each power unit.

"An outstanding feature of your Unit is the action of the governor which allows a flexible speed—the pick-up of the pump barrel is slightly retarded, yet maintains the desired strokes per minute, resulting in increased production and less rod parting.

"We take pleasure in submitting this letter, which is prompted by the actual facts concerning the Units, and evidenced by our recent order for six more of your Units for our wells in the Midway-Sunset District."

# McCORMICK-DEERING INDUSTRIAL POWER

# FIELD PROBLEMS FROM READERS

Edited by Thomas F. Smiley

This department is conducted in order that men connected with the drilling, producing and transporting branches of the petroleum industry may obtain aid in solving problems that confront them in their work. Readers are invited to send questions freely. These questions will be placed in the hands of persons capable of answering them authoritatively, and the answers, based on the best available information, will be published.

Each question should give as much detail as possible, especially if it involves depth of sands, types of sands and operations on adjoining or nearby properties. The source of questions will be considered confidential, and only the initials of the sender will be published. Questions involving patented processes, intricate formulas or estimates of cost cannot be answered. If an immediate answer is important, one will be given by mail when the writer requests it.

In this connection, The Oil and Gas Journal will be glad to publish articles from field men who have devised new methods or improved old ones.

## Overloading Is Found to Be Chief Cause of Sucker Rod Failure

**Does heat-treating offer the best way of reconditioning sucker rods? Is it possible by this heat treatment to restore rods that have begun to break frequently because they have been used so long that they have developed fatigue? I would appreciate any suggestions along the line of reconditioning sucker rods and of what can be done to prevent needlessly early failure.—T. E. R.**

Your question indicates that you assume most failures in sucker rods are due to fatigue of the metal. Investigations have proven that other conditions contribute largely to sucker rod failures. In a paper presented before the World Petroleum Congress in London, E. Stanley Durward, engineer for the Shell Petroleum Corp., Houston, Tex., says in part:

"A careful survey of operating conditions and practices and an examination of broken rods and pins led to conclusions that were somewhat astonishing.

"Two main facts were clearly evident, viz.:

"1. Practically all breaks of rods or rod-pins were of the progressive fracture type. In fact, the only failures the writer encountered, where loading beyond the strength of the rod was the cause of breakage, were where the pump plunger had become stuck and the rods were broken pulling too hard trying to free them.

"2. The principal causes of failures were the common or usual operating practices and methods of handling the rods; it being estimated that as much as 75 per cent of the failures were due to these causes alone.

"At the time of the investigation, the following practices were quite common throughout the oil fields:

"1. Bundles of rods unloaded from railroad cars with short slings, allowing the rods to bend in an arc when hoisting out of the car.

"2. Stored rods improperly supported so that they became bent between supports.

"3. Carried from warehouse to well on short-bodied trucks, allowing so much of the rods to hang over the end of the truck that they became bent in transit.

"4. Laid on the ground at the well, where they were trampled on by the crew and run over by trucks.

"5. Cut and bruised by hacking off the bundle tie-wires with an old derrick hatchet instead of cutting off with a pair of pliers.

"6. Careless installation in the well with threads not properly cleaned, resulting in joints not being shouldered up or pins strained and boxes expanded by forcing joints to shoulder.

"7. When pulling rods, laying them on the ground or on the walk, where the crew can step on or tools be dropped on them and grit get into boxes and on pins.

"8. When running back into the hole, pulling the rods too fast into the derrick, causing them to kink or bend by pulling up under the derrick girts.

"9. Straightening bent rods by screwing them into place, picking up the string hanging in the hole and straightening the bend or kink by hammering on the outside curve of the bend with a rod or wrench or any other handy tool.

"10. When rods broke, fishing out only to the broken rod, screwing on and running back into the hole or in the case of an unscrewed joint, merely screwing on down in the hole and tightening up the joint from the surface.

"11. In removing the rods, hammering on the box or coupling to loosen tight joints to make unscrewing more easy, this resulting in deformed boxes and badly fitting threads.

"Amongst operating practices found to be common were:

"12. Wells pumped to 'pound fluid,' that is, operated so that the pumping speed exceeds slightly the capacity of the fluid to enter the working barrel, resulting in a partially filled barrel, the plunger leaving the fluid on the up stroke and striking it on the down stroke. This, of course, sets up shock loads and vibration in the rods, causing fatigue of the metal.

"13. Too high operating speeds, resulting in 'whipping' of the rods, complete release of the load in parts of the string and high impact loads, all of which cause rapid fatigue of the metal.

"14. Operating rods in a crooked hole without rod guides. Wells totally unbalanced, improperly balanced or with entirely unsuitable types of counterbalance weights which in themselves imposed damaging strains on the rods. This latter was found to be particularly true of some reciprocating counterbalances when run fast.

"The troubles resulting from the above production practices are:

"Early fatigue from strain or load reversals. (See 12, 13, 14.)

"Progressive fractures commencing in a cut, bruise or crack in metal strained beyond the elastic limit. (See 1-8, inclusive, 10 and 11.)

"Loosened joints resulting in 'unscrews' or progressive fracture of the pin at the root of the first full thread. (See 4, 6, 7, 9 and 11.)

"Worn boxes, couplings and rods, resulting in failure through reduction in effective area and consequent failure at the point of reduced area from overloading. Unscrewed joints from coupling wear or distortion. (See 11 and 14.)"

These bad practices should be discontinued and rod failures will be decreased.

Heat-treating sucker rods to normalize the metal is not a very satisfactory method, especially if attempted in the field. Definite control of temperatures in the annealing furnace is necessary and this work can best be done in a plant designed for this purpose.

Many of the failures that result in rod breakage have been found to start with small breaks in the skin of the metal and this cannot be remedied by heat treatment. If care is exercised in handling rods the tendency to develop fractures will be reduced to a minimum. This will remove the cause of most rod failures and make heat treatment unnecessary.

## Wants Literature on Wire Lines and How Best to Handle Them

**I want to get some literature on wire lines and how to take care of them so as to get the best service out of them. Can you give me some suggestions?—E. E. T.**

It is suggested that you write to the American Petroleum Institute, 250 Park Avenue, New York, and ask for Standardization Bulletin No. 103, dealing in much detail with this subject. A small price customarily is charged for such publications, if the applicant is not a member of the institute. Another suggestion is that you write to the Superintendent of Documents, Washington, D. C. and ask for a list of the Bureau of Mines publications on wire lines. From this list you can select such publications as you want.

## Why Was It Called That?

### PLATINUM

Platinum, used in the manufacture of delicate electrical apparatus, derives its name from the Spanish "platina," from "plata," silver. Platinum wire may be so slender that a single strand is invisible to the unaided eye. Used as a fuse wire, a strand is about one-thirtieth as large as the average human hair. It would take more than 13,000 strands laid side by side to measure an inch. A pound of platinum drawn out into such fine wire would reach around the earth with nearly 5,000 miles to spare, but it would cost $11,280 to produce a pound of it.

## What Decides Location of Wells With Respect to Structure?

**Aside from the matter of spacing the wells on a tract of land I take it for granted that some kind of rule is followed in determning just where to locate wells on a structure at the various stages of development of the field in order to get the highest possible recovery. If the principles determining the selection of sites for wells can be given briefly I would be grateful if you would tell me what they are.—G. F. R.**

The principles underlying the location of wells with respect to the structure as recommended by Dr. J. Versluys to the World Petroleum Congress held in London in July, 1933, are based on his conception of the effects of the various sources of energy available in an oil field. The phenomena which cause production are chiefly depletion, general motion and direct action of gravity on the oil.

Doctor Versluys pointed out that invasion by oil of that portion of the structure which was originally occupied by gas has to be avoided as much as possible because only part of the oil that enters the gas cap can be recovered. For this reason care should be taken not to tap gas from gas cap in the first stage of the producing life of a field. When, however, pressure has dropped in the field on account of production, conservation of the gas in the gas cap need not be made a hard-and-fast rule.

Parts of the field which have been drained by depletion and by the direct action of gravity have yielded only a small percentage of their oil and more oil can still be recovered if water is admitted afterwards, preferably slowly.

The general motion causes the gas cap to expand and the edge water to encroach. Their edges advance the more regularly the more evenly the wells are distributed around the crest, as they are farther away from these edges, and produced more gently, and as their number is greater. The old practice of stepping out in a zigzag line on one side of a structure should be abandoned. The most favorable method of developing an oil field would be to drill one or two rows of wells on one or two contours in the oil, so that they should not be invaded too soon by edge water or by gas from the gas cap. Considered from a merely theoretical standpoint such wells should be drilled very closely and opened all at the same time, but for various reasons this is not commercially feasible. The structure should, therefore, be encircled with wells as soon as possible, so that it is better to space them widely in order to establish drainage within a short time on all sides with the available drilling strings. If necessary, intermediate wells on the same contours can be drilled later on.

As more oil can be set free from the stand when it is invaded by water than when it is depleted or invaded by gas, it may, in many cases, be tried whether it pays to recover the oil which remains in the sand updip of the original wells, after these wells have gone to water, i.e. by drilling crestal stripping wells.

There are fields in which the edge water encroaches so slowly as to be negligible, and such fields could be drained by wells on the periphery. When the limits of economic production of these wells is reached artificial flooding from the periphery and production through crestal walls may be profitable.

# NATURAL GAS DEVELOPMENTS

## Several Near Completions in Potter County Field

COUDERSPORT, Pa., Feb. 10.—Operators in the Potter County gas fields are looking to the coming week for the completion of several commercial producers, following a week of comparative inactivity which saw several wells shut down to run casing and to prepare for tapping the pay sand.

Penn United's U. S. Russell test found the Tully lime at 4,692 feet and the latest report by company officials was that the test was drilling at 5,200 feet. The pay sand is expected to be tapped early next week. The Reed well on the Champlin property is shut down while the casing is being run. This project may be completed before the end of the week with a final shutdown early next week.

The Potter County lands, with James Duff and others drilling are being watched with interest with an expected drill-in sometime next week.

Hanley and Bird's well on the Gooch farm is also near the Oriskany at a fast clip with the drill at 4,513 feet.

The North Branch Development Co. on the Doty farm is digging cellar preparatory to starting drilling soon. Allegany Gas Co. has completed its rig on the Oswayo Chemical Co. land which is but a short distance from the 14,000,000-foot No. 2 Carpenter.

Another project has been planned for the Phelps farm only a short distance from Sylvania's 12,000,000-foot well. The rig is now nearly completed.

Potter Development Co. is reported to have a showing of 80,000 feet of gas on its project with no depth reported. It is probable the well will be shut down and casing run.

East Penn had completed cementing on the Emporium Lumber Co. with a 5,865-foot hole and expected to tap the sand within the next few days.

Sylvania's well on the Higley farm was completed during the week with a flow of slightly more than 16,000,000 feet. Hungiville's No. 1 Higley was capped with 12,000,000 feet per day some time before.

Gas men are interested just at present in another test of the Sabinsville anticline in Hector Township, Potter County. North Branch Development Co. has made a location about 3 miles southwest of the old Ackley dry hole, and cellar is being dug to make another test.

The well on Potter County's lands being drilled by James Duff and others is drilling at 4,788 feet. The Tully lime was found at 4,753 feet.

The Penn United's No. 1 V. B. Russell is getting down where the well must soon be either a success or abandoned. It is reported today as drilling at 5,273 feet.

United Carbon is rigging up on the H. B. Phelps farm, and the Allegany Gas is rigging to start the drill on Oswayo Chemical Co. lands only a short distance from the successful No. 2 Carpenter.

The Barker-Britton well started operation during the week on Russell land but shut down at 230 feet.

The Allegany Gas Co.'s well on Emporium Lumber Co. lands near Emporium is drilling at 6,046 feet. The sand was found at 6,043 feet and about 30,000 feet of gas is reported.

The Updegraff on the Coyle farm, shut down for about six months, is being bailed out preparatory to resuming operations. The hole is 4,900 feet deep.

The well known as First National Bank, near Emporium, an operation of the Tioga Natural Gas Co., is cementing a cavein at 4,480 feet.

## Natural Gas Company Rates and Income Discussed by Dr. J. French Robinson

Dr. J. French Robinson, vice president of the Peoples Natural Gas Co., of Wellsboro, Pa., in addressing the Pennsylvania Newspaper Publishers Association at Philadelphia, Pa., last week, covered the subject of rates, merchandising and taxes of natural gas companies in an interesting talk. His address in part follows:

"It is my purpose to tell you about four phases of the natural gas business which seem to be the basis of the most frequent discussion and criticism by the public and by the newspapers.

"Our business, like yours, is speculative. You spend generously for complete news service so you will miss nothing of importance, even though you know each day much of this news goes into the waste basket. So, too, with us, we acquire a large number of leases and expend large sums of money in geological and geophysical work, endeavoring to classify our acreage so as to drill the more favorable first. Even with all this precaution, approximately 20 per cent of the wells drilled will be unproductive. We construct miles of gathering lines, build large and long transportation lines, install large compressor stations, lay and maintain adequate distribution systems, and much of this whole investment must lie idle except on few days of peak demand.

"Like your business, we cannot build up inventory in dull or slack periods. We must distribute our commodity as the consumer desires it. Like you, we must be on duty all the time. Our investment and service facilities remain practically the same the year around.

### Rates

"In the span of a single generation, we have moved with incredible speed through the experimental, promotional and consolidation stages of utility development. The utilities have reached the point where they must be properly and scientifically financed if they expect to remain in business for any length of time. Under the law of the land, a utility is entitled to a fair return upon the present fair value of its property, over and above reasonable operating expense, including depreciation of reserves. The rate allowed differs somewhat with the type of utility. (With the natural gas utilities it would appear that the maximum rate should be allowed because when the gas is drawn from the sand and is gone it cannot be raplaced by nature.) The rate usually allowed utilities varies from 7 to 8 per cent. Keeping this in mind on one hand, and listening to the criticism on the other hand, that the gas rates have not come down as fast as other commodities in predepression days, and in recent months when other prices have advanced, natural gas rates have remained stationary for the most part, or have moved downward.

"The natural gas industry is far from being depression proof. In 1932, for example, Pennsylvania natural gas companies marketed 17½ per cent less gas than in 1931, 43 per cent less than in 1926, and 54 per cent less gas than in 1917, their maximum year.

"In spite of the drop in sales we must maintain an adequate investment in wells, lines, compressor stations, etc., and must be ready for normal average consumption and the peak demands of winter which rise as rapidly as the temperature drops and with as little warning. The demand may be cut in half the next day, but our investment and working force remain the same. Sales of gas to the industrial consumer, when it is not needed for domestic consumers' requirements, help to cover the necessary operating and maintenance expense, and a return on the investment in our property. Since 1926 industrial sales have fallen off more than 50 per cent and the average domestic bill has decreased 25 per cent. A study by one Pennsylvania company shows that 43½ per cent of all bills rendered during the preceding year represented a loss because they did not pay enough to cover the actual cost of the gas used, interest on the investment required to pipe and furnish meters and their proportionate share of our service cost.

### Income

"So we find that only the income from large domestic, industrial and commercial consumers enables use to stay in business.

"It is imperative that the natural gas industry retain its present load and acquire additional load, or the domestic consumer must pay more for his natural gas instead of less. The domestic load is so small during the summer months that it is impossible to make up the loss in the winter by increased domestic sales alone.

"When one considers rates, he must have in mind not only the value of the commodity which he is buying, but also the amount and type of service he is receiving. I am sure the effort our industry puts forth to serve its consumers will compare favorably with that of any other industry. We render every type of service necessary to keep gas at your instant call. We maintain a sufficient organization from the well to the consumer to take care of any emergency which may arise, to such an extent that the consumer is usually unaware of this emergency.

"We are oft-time asked why the natural gas rates are not uniform in every community. I think the reasons for this are comparable with the fact that newspaper subscription and advertising rates are not the same in all communities, where circulations are comparable.

### Why Rates Vary

"Here are some of the reasons why our rates vary:

"The community's accessibility to or remoteness from the main supply or main distributing system; compact or widely spread population; and whether consumers make limited or extensive use of gas.

"As to vested or exclusive rights in Pennsylvania, the public service company law regulates all new franchise rights and will not permit uneconomical duplication of service facilities. This is done to protect any community from waste of invested capital. But no law gives to the natural gas industry any real right to a monopoly. Natural gas is not used for a single purpose for which we do not have competition from coal, coke, oil or electricity, or from any combination of these. These competitive industries recognize no inherent or vested rights of the gas industry to any portion of its business. They are vigorously contending with every service that gas performs. Therefore, we feel that the individual who buys natural gas does so only because it is the best thing he can buy and at a price which represents its true value to him. There is nothing in the law which relieves our managements of constant, efficient operation in order to get new customers and hold on to the present ones. In other words, there is no legal power which guarantees us either business volume or profit."

## Michigan Developments; Schedule in Big Rapids

MUSKEGON, Mich., Feb. 10.—Big Rapids city council last week accepted a schedule of rates for natural gas from the Mecosta County Field, beginning at 75 cents for the first 300 feet offered by Taggart Brothers, Inc., through their Mecosta Pipe Line Co. The rest of the schedule approved for the first six months of operations started February 3 is as follows: Next 1,700 feet, $1.90 per 1,000; next 28,000 feet, 40 cents per 1,000; and all above 30,000 feet, 25 cents per 1,000.

The Mecosta Pipe Line Co. has first call on reserves of 2,000,000,000 feet in the new Austin Township, Mecosta County, gas pool. The next 14,000,000 feet of reserves has been contracted to the American-Michigan Pipe Line Co. of Muskegon, new subsidiary of the American Light & Traction Co., planning to start laying a 55-mile 8 and 10-inch line about March 1.

A mixture of artificial and natural gas will be delivered through the Big Rapids Gas Co. mains to local consumers until adjustment of household and commercial burners has been completed within a week or 10 days.

A co-operative move to conserve natural gas resources of Michigan was started this week at a conference between state officials and members of a special committee of the Oil and Gas Producers Association of Michigan.

Virgil McClintic and Robert W. Atha, of Mount Pleasant, and Don R. Mitchell, of Detroit, as associate in Taggart Brothers, Inc., of Big Rapids, met with Harry C. McClure, a member of the Michigan Public Utilities Commission, and representatives of the oil and gas division of the State Conservation Department in Lansing, including Dr. R. B. Newcombe, assistant state geologist, and Floyd R. Frye, state oil and gas engineer.

It was agreed a plan will be worked out and submitted to state regulatory bodies soon. The principal regulations now in effect provide that not more than 25 per cent of the potential open flow of any well may be delivered into gas pipe lines and wells must be drilled in the center of 40-acre quarter sections in proved gas fields.

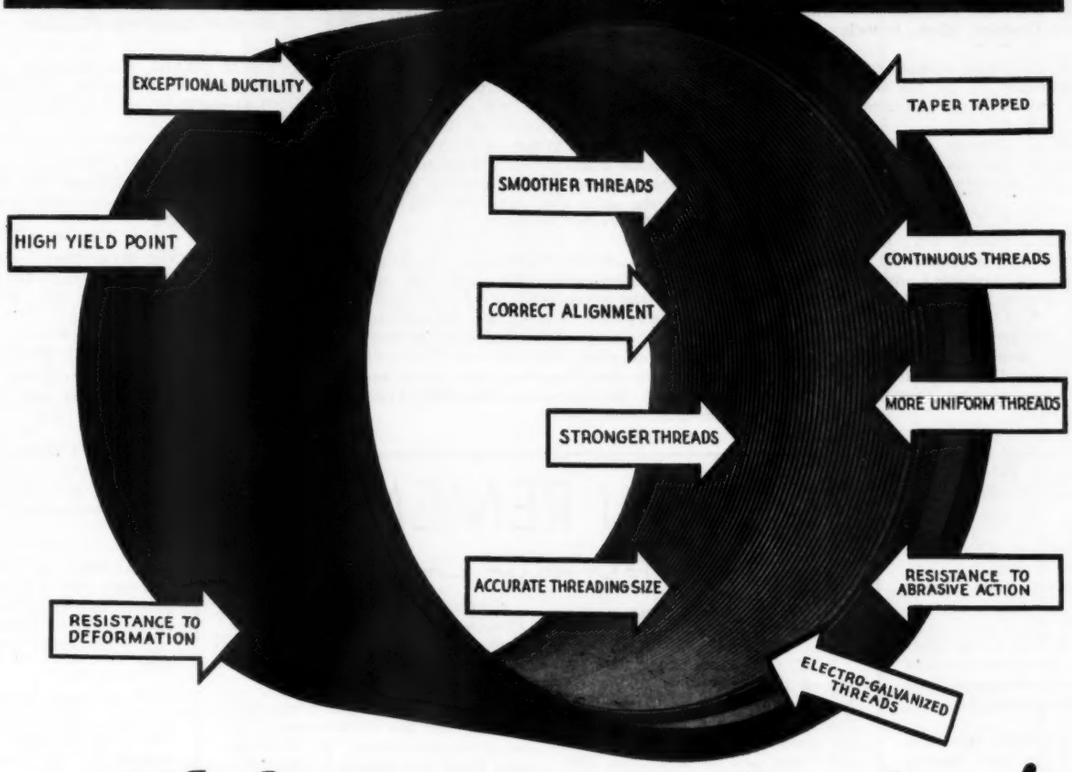
### MINIMUM CHARGE TEST

Possibility of an Oklahoma Supreme Court test on the question of whether gas companies can put into effect a monthly minimum service charge of $1 has appeared in notice such an appeal would be taken from a recent adverse decision of a State Corporation Commission in a case brought by a small gas company.

### GAS COMPANY ASSESSMENT

INGERSOLL, Ontario, Feb. 10.—As a result of negotiations between the Dominion Natural Gas Co. and the municipal council, an agreement has been reached under which the company's assessment for municipal purposes is to be reduced from $85,000 to $65,000. A tentative agreement has also been reached regarding a new gas rate schedule.

# COUPLING *facts*

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# NATIONAL *Seamless Steel* COUPLINGS

# PERSONAL PARAGRAPHS

G. E. GOETZING, Oil City, Pa., credit manager for the Oil Well Supply Company, spent some time in Mount Pleasant, Mich., recently.

* * *

M. H. SLATTERY, formerly with the Oil Well Supply Company at Oil City, Pa., has been transferred to the Mount Pleasant, Mich., branch.

* * *

H. C. CONEY, of the Texas Company, left New York, Saturday, February 10, on the Grace liner, Santa Clara, on a trip to South American points.

* * *

R. D. COMPTON, of Artesia, N. Mex., has returned from California where he and MRS. COMPTON went to visit Mrs. Compton's father, who was quite ill.

* * *

TOM E. CRANFILL, Dallas, Tex., head of the C. & G. Oil Company and Mustang Oil Company, is convalescing from an emergency operation performed in that city during the week.

* * *

M. S. LUPHER, old-time operator in the Central Ohio and other fields, and of the Lupher Drilling Company, was in Mount Pleasant, Mich., recently. Mr. Lupher expects to leave for Florida within a week for a needed rest.

* * *

FRED M. MANNING, of Manning & Terry, with offices in Tulsa, was a visitor recently to the Cut Bank Field in Montana.

* * *

PAUL STOCK and L. G. HINKLEY, of the Big Horn Oil & Refining Company, of Billings, Mont., were in Casper, Wyo., recently.

* * *

JOHN W. COAST, III, in the operating department of the Alco Products Company, has been transferred from Oil City, Pa., to Shreveport, La.

* * *

C. J. DEXTER, of Artesia, has been elected president of the New Mexico Oil and Gas Association, and HARRY LEONARD of Roswell has been elected secretary-treasurer.

* * *

JAMES A. VEASEY, of Tulsa, vice president and general counsel for the Carter Oil Company, has returned from a trip to Monterrey, Mexico. He was accompanied by MRS. VEASEY.

* * *

MISS I. F. KRABBE, vice president of the Key Boiler Equipment Company, East St. Louis, Ill., has been over the Tulsa territory in the past week observing the general refinery situation.

* * *

A. B. VAN HOOSIER, field superintendent, and PAUL WIMBERLY, warehouse man, both with the Humble Oil & Refining Company, have been transferred to the O'Conner Field in Southwest Texas.

* * *

P. E. DARLING, formerly connected with the Magnolia Petroleum Company at Beaumont, Tex., now is associated with the Pan American Refining Company as test engineer at the latter company's new refinery at Texas City, Tex.

* * *

DAVID E. BEACH, general superintendent of the Pure Oil Pipe Line Company, and member of the regional pipe line committee, was called to Washington, D. C., from Mount Pleasant, Mich., for a national code conference.

M. E. BAISH, oil operator of Artesia, N. Mex., is in Los Angeles, Calif., on a business trip.

* * *

W. B. EMERY, geologist for the Ohio Oil Company, of Casper, Wyo., was a Denver, Colo., visitor the past week.

* * *

A. G. McKIMMY, of Columbus, Ohio, representative of the Columbia Rope Company of Auburn, N. Y., is spending a few days in the Michigan fields.

* * *

P. M. MISKELL, manager of the refining and marketing departments, and O. J. TUTTLE, sales manager of the Empire Oil & Refining Company, Tulsa, were in New York last week attending a meeting of the sales and manufacturing executives of the Cities Service Company.

* * *

RICHARD A. WOTOWITCH, an executive of the Cities Service Companies, last week, was re-elected president of the Seven O'Klockers Club, commuters who pay $38.24 each in train fare monthly in order to live in Philadelphia, Pa., and work in New York City. Mr. Wotowitch has made this round trip between the two cities requiring four hours daily for several years. He has served the club as president for the past seven years.

J. C. CARPENTER, of Saginaw, Mich., has been in Mount Pleasant, Mich., leasing acreage for New York interests.

* * *

H. G. PHILLIPS and H. E. KIRSCHNER have been elected secretary and assistant secretary of the Rice Ranch Oil Company.

* * *

A. B. CRAIG, vice president of the Chartiers Oil Company, Pittsburgh, Pa., has been looking over the Michigan Field, with headquarters at Mount Pleasant, Mich.

* * *

A. W. (BONES) WYATT has been re-elected president of the Midland Oil Scouts Association, and R. E. WITTY, secretary, will continue in that office for 1934.

* * *

GEN. JACOB WOLTERS, chief counsel for the Texas Company, Houston, Tex., was a business visitor to Fort Worth, Tex., attending the West Texas proration hearing.

* * *

H. C. LOCKHART, of Artesia, N. Mex., an operator in the New Mexico fields, has returned home to recuperate following an operation which he underwent recently at Dallas, Tex.

* * *

A. E. LIDDERDALE, of Billings, Mont., Rocky Mountain representative of Spang & Company, was in Casper, Wyo., accompanied by MRS. LIDDERDALE.

* * *

WALTER G. SWANEY, general manager, Kerotest Manufacturing Company, Pittsburgh, Pa., is calling on the trade in Tulsa after which he is going to the Gulf Coast to spend some time.

* * *

E. B. (HARDROCK) COOLIDGE, of Great Falls, Mont., was in Casper, Wyo., on business with several oil companies. Mr. Coolidge is chairman of the Montana Oil Conservation Commission.

* * *

TED RUSSELL, former employe of the Oil Well Supply Company in the Bradford Field, Pennsylvania, recently became associated with the Roosevelt Oil Company, of Mount Pleasant, Mich., as material man.

* * *

H. C. NELSON, independent operator in the Muskegon and Oceana oil fields, of western Michigan, recently left his home in Muskegon to spend several weeks in Florida. He was accompanied by MRS. NELSON.

* * *

CHARLES E. ORCHARD and JOE COOK, of Denver, Colo., were in Casper, Wyo., on business connected with the Carbon Oil & Gas Company which has holdings in the Dry Creek oil and gas field in southern Montana.

* * *

GUY E. (CHAPPIE) CHAPMAN, McClanahan Oil Company geologist, of Mount Pleasant, Mich., and former member of the Dixie Oil Company geological staff in Muskegon, Mich., is visiting his mother in Oklahoma for a week.

* * *

DR. EUGENE A. STEPHENSON, Missouri State School of Mines, Rolla, Mo., will address the Chicago section of the A.I.M.E. at the Engineer's Club on February 16. His paper is entitled "Some Current Aspects of the Petroleum Industry."

## DO YOU REMEMBER?

From The Oil and Gas Journal Files

### 25 Years Ago

February 15, 1909

J. E. Crosbie of Tulsa has purchased the holdings of Robert Galbreath and associates in the Glenn Pool in Oklahoma, consisting of 1,280 acres of productive leases. The price was said to have been $700,000. Mr. Galbreath and partners opened the Glenn Pool three years ago. There are 69 producing wells on the property purchased, good for 3,000 bbls. per day, and the deal includes 500,000 bbls. of stored oil, which has been sold to the Texas Co.

The Department of the Interior notifies producers on leases of the Five Civilized Tribes that commencing February 1 and continuing until further notice the producers must pay the Indian lease owners 41 cents per barrel for royalty oil. Producers themselves get from 27 cents to 40 cents per barrel, according to gravity. Glenn Pool crude brings 35 cents per barrel.

A fifth story is to be added to the Robinson Hotel in Tulsa, the finest and most up to date hotel in the State. A first class elevator will be installed and the lobby will be enlarged.

### 20 Years Ago

February 19, 1914

Malcolm G. Vilas has been elected secretary and treasurer of the Standard Oil Co. of Ohio, following the resignation of James N. Robertson as secretary of the company.

Mrs. Elizabeth Tulloss, of Rantoul, Kans., has a royalty income of $6,000 per month from her 230-acre farm in Franklin County, Kansas.

George E. Casey, foreman of the Prairie Oil & Gas Co. in the Cleveland, Okla., district, and Miss Anna Belle Riley of Cleveland were married on February 11.

In reply to an inquirer who asks who opened the Burkburnett, Texas, field, and when: The Burkburnett Field was opened by the Corsicana Petroleum Co. with a well on the Schmoker lands (mapped Atkins), 3 miles south and a half mile west of Burkburnett station in June, 1912. The well started at 100 bbls. per day.

### 10 Years Ago

February 14, 1924

Dissolution of the Humphreys Oil Co. which sold its properties to the Pure Oil Co. for $15,000,000 about a year ago, will be acted upon at a meeting of the stockholders on March 1.

Charles J. Caward, president of the Mason City Oil & Grease Co., dies at his home in Mason City, Iowa. He was vice president of the Iowa Independent Oil Men's Association.

In the last quarter of 1913 the following companies led in production in the Oklahoma Field: Gypsy Oil Co., 3,130,141 bbls.; Phillips Petroleum Co., 2,554,999 bbls.; Comar Oil Co. (owned by Roxana Petroleum Corp. and Marland Refining Co.), 2,402,026 bbls.; Skelly Oil Co., 2,173,279 bbls.; Carter Oil Co., 2,065,480 bbls.; Magnolia Petroleum Co., 1,665,652 bbls.; Prairie Oil & Gas Co., 1,527,254 bbls.; Sinclair Oil & Gas Co., 1,333,888 bbls. No other company was in the 1,000,000-bbl. class.

C. A. ANDRODE, III, independent oil operator of Dallas, Tex., was in Houston, Tex., on business last week.

* * *

E. H. SALRIN, first vice president of the Tide Water Oil Company, Houston, Tex., is spending a two weeks' vacation in Miami, Fla.

* * *

FRED HODSON, assistant sales manager, St. Louis, Mo., district, Johns Manville Company, is spending several days in Houston, Tex., on business.

* * *

A. B. AYERS, of New Castle, Ind., president of the Union Oil & Mining Company, has been a business visitor in Tulsa the past week. He was on his way to New Mexico.

* * *

D. A. BASH, chief chemist, Empire Oil & Refining Company, Eldorado, Kans., addressed the Kansas Chapter of the A.P.I. Production Division at a meeting held in Wichita, Kans., on February 10. His paper was "Oil Field Corrosion Problems."

* * *

A. I. LEVORSEN, geologist, Tulsa, formerly connected with the Independent Oil & Gas Company, and lately doing special work for the Phillips Petroleum Company, has been made chief geologist of the Tide Water Oil Company with headquarters at Houston, Tex.

* * *

FORMER GOVERNOR AND MRS. B. B. BROOKS, of Wyoming, and their son SILAS, and MRS. SILAS BROOKS, have left Casper for a pleasure trip to southern California going by the northern route to San Francisco and then down the coast to Los Angeles and San Diego. They expect to be gone a fortnight.

* * *

T. F. ROBERTSON, a former employe of the Pure Oil Company, is now working for C. W. TEATER, independent operator in the Mount Pleasant Field of Central Michigan.

* * *

L. C. DECIUS, of the Associated Oil Company, and R. A. SPERRY, of the General Petroleum Corporation, were recently elected directors of the Ketteman North Dome Association.

* * *

J. A. WARREN, secretary of the Kinney-Coastal Oil Company, has returned to Denver, Colo., headquarters following an inspection of the company's properties in the Big Horn Basin in Wyoming.

* * *

P. R. SMITH, chief scout of the southwest producing division for the Pure Oil Company, Tulsa, spent a few days in Texas last week on business. He was formerly located in the Fort Worth, Tex., office.

* * *

FRANK WHEATLEY, president of Wheatley Brothers Brass Foundry & Machine Works with plants in Kansas City and Tulsa, has moved his family to Tulsa to be in active charge of the company.

* * *

CAPT. E. N. STANLEY, head of the East Texas forces of the Texas Railroad Commission, is being transferred to Austin and into the utilities division of the commission, in which he formerly served as director of a statewide survey of utility operations in Texas.

* * *

MRS. ROBERT PENN was re-elected president of the Penn Oil Company, Dallas, Tex. HEATH M. ROBINSON and MARION S. CHURCH were re-elected vice presidents, and GENE SOWARD was named secretary-treasurer. MRS. MAURINE ROACH was again named assistant secretary-treasurer.

* * *

R. H. (BOB) FELTNER, independent operator of San Antonio, Tex., and formerly of Fort Worth, Tex., has been elected secretary-treasurer of the San Antonio Petroleum Club. THORNTON DAVIS, Simms Oil Company, was named president, and A. A. BUCHANAN and DILWORTH HAGER, vice presidents.

## He's One of Pure Oil's "Four Mac's"

Four of the Pure Oil Company's refineries are in charge of "Macs" —McCadden at Marcus Hook, McBride at Muskogee, R. D. MacClaran at Toledo and Heath, and McPherson at Heath—all of Scotch ancestry.

E. E. McPHERSON

E. E. McPherson was born in Salineville, Ohio, April 18, 1890. After a public school education he spent 10 years working in steel mills. In 1915 he migrated to the oil fields of Oklahoma and Texas, where he was employed as a roustabout and pumper. Then he worked as a stillman, later going to the Kansas City district, where he followed the same work. Here he was engaged to be one of the original operators on the Cross cracking process at Pure's Heath refinery, near Newark, Ohio, the first refinery to install this system on a commercial basis. Mr. McPherson became associated with the Pure Oil Company, February 16, 1920, and successively held positions as Cross stillman, still foreman, assistant superintendent, and in November, 1930, he became superintendent at Heath, when Mr. MacClaran became manager of the refineries at both Toledo and Heath.

Mr. McPherson married Miss Ellen Richards in Lorain, Ohio, in 1913, and they have four children. His hobbies are hunting and fishing with a touch of farming. He likes to bowl and is interested in promoting sports at the refinery. He makes it a point to keep the Heath plant in excellent condition, and its attractive lawns and flowers are a subject of comment.

W. C. JOSEY, president of the Rancho Oil Company and Gem Oil Company, Fort Worth, Tex., has been vacationing in Miami, Fla.

* * *

L. H. PRICHARD, of the Anderson-Prichard Oil Corporation, Oklahoma City, Okla., was a business visitor in Texas during the week.

* * *

A. R. WILSON, production manager of the Rocky Mountain division of the Texas Company, has returned to Denver, Colo., from Casper, Wyo., where he attended a conference of division managers.

* * *

CARL ANDERSON, of Oil City, Pa., is making a survey of the pumping problems in the Michigan oil field. Mr. Anderson, field engineer for the Oil Well Supply Company, expects to be in Mount Pleasant, Mich., for several weeks.

* * *

KENNETH STAVELY has moved to Wichita, Kans., from Eureka, to become land man for the Reserve Petroleum Corporation. He formerly was a scout for the Independent Oil & Gas Company. He succeeds PAUL ZAHN, who has been transferred to Texas.

* * *

E. A. HALL, of the Pure Oil Company's Muskogee refinery, has returned to Oklahoma after spending several months in Central Michigan inspecting and repairing equipment for the Pure Oil Pipe Line Company. Mr. Hall made his headquarters in Mount Pleasant during his stay in Michigan.

* * *

A. L. WEIL, vice president and general counsel of General Petroleum Corporation since the company was organized by JOHN BARNESON a number of years ago, has been elected president, succeeding JOHN A. BROWN, who has been transferred to New York to become chairman of Socony-Vacuum's operating committee.

* * *

CHESTER A. HAMMILL, geologist of Dallas, Tex., has been appointed to head the convention headquarters of the Dallas Petroleum Geologists. An office has been opened in the First National Bank Building to handle details for the national meeting of the American Association of Petroleum Geologists to be held in Dallas, March 22, 23 and 24.

W. A. WAGNER, of San Antonio, Tex., is on a trip to Chicago, New York and Washington.

* * *

MR. AND MRS. J. S. COSDEN, of New York, will spend the remainder of the winter at Palm Beach, Fla.

* * *

T. A. HALL, chief engineer of Tide Water Oil Company, has been transferred from Tulsa, to Houston, Tex., as headquarters.

* * *

G. C. TERRY, of Tulsa, salesman for the Wall Rope Company, of Philadelphia, Pa., was a recent visitor in Mount Pleasant, Mich.

* * *

J. C. PATTERSON, of Pittsburgh, Pa., eastern division manager of the Frick-Reid Supply Corporation, spent several days in Mount Pleasant, Mich., last week.

* * *

F. P. STERLING, former vice president of the Humble Oil & Refining Company, Houston, Tex., and MRS. STERLING, have returned from a trip to New York.

* * *

J. D. AMENDA, of Reno, Nev., and EDMUND SHANK of Los Angeles, Calif., were recent visitors at Farmington, N. Mex., where they made an inspection of their oil and gas leases on which drilling operations have already been started.

* * *

SENATOR H. H. SCHWARTZ, of Casper, Wyo., was elected president of the Arro Oil & Refining Company at the annual meeting of the stockholders held recently at Lewistown, Mont. ED L. ALLEN was elected vice president and GUY ENLOW was chosen secretary.

* * *

C. M. PAYNE has been appointed district accountant and district credit manager of the Honolulu department of the Union Oil Company of California.

* * *

ROBERT WILKINSON, extensively interested in Turner Valley oil development, has returned to Calgary, Alberta, from a trip to Vancouver, British Columbia.

* * *

JOHN ELDER, of Junction City, Ohio, has spent some time looking over natural gas prospects in Michigan, especially in Mecosta County, and Isabella County.

* * *

C. O. DILLARD, president of the Monongahela Oil Company, has returned from Crook's Gap, Wyo., where he inspected the rig which has been built in that field for a deep test.

* * *

FRED W. TURNER, formerly of the Old Dutch Refining Company, Muskegon, Mich., and his bride, the former MISS MAXINE WALKER, daughter of MR. and MRS. A. R. WALKER, of Muskegon, sailed from Los Angeles, Calif., on February 3 aboard the S. S. Chiriquay for an 18-day cruise including a visit to Mexico City, Mexico. Upon their return they will visit Mrs. Turner's parents in Los Angeles before continuing on to their new home in Mount Pleasant, Mich., where Mr. Turner is now engaged as an independent oil operator.

* * *

FRED M. LEGE, JR., of Dallas, Tex., chairman of the state marketing committee under the national oil code administration, has been appointed a special Texas Ranger. Mr. Lege, who is vice president of the Magnolia Petroleum Company, has been active in oil code prosecutions since the code was adopted and was chairman of a committee of five which visited Washington, D. C., recently to obtain Federal help in ending code violations. His father served for some time as a captain of the Rangers. The suggestion for the appointment was made by LaVergne F. Guinn, special Assistant U. S. Attorney General in charge of code prosecutions, as a recognition of Mr. Lege's service in behalf of legal production, refining and marketing in this State.

# NEW AND IMPROVED EQUIPMENT

## Severe Conditions of Deep Zones Met by Axelson Cage

Realizing the necessity of a cage design offering greater strength, the Axelson Manufacturing Co., Vernon Station, Los Angeles, Calif., has designed a cage with more metal at the wings to withstand conditions encountered in deep producing zones. Instead of cylindrical milling, it will be noted that the openings have been square-milled, permitting the proper and successful use of the Axelson seat and drop.

This heavy-duty cage, made in both box type and pin type, is of four-wing

construction, having a minimum amount of metal removed to produce the openings. The cage is hardened inside to provide a suitable wearing surface against which the ball or the drop operates. Having four wings, neither the ball nor the drop is permitted to flutter or spin, with the result that the moving member always lifts in a true vertical plane and is automatically centered upon the seat when the valve is in the closed position.

Based upon the diameter of a standard A.P.I. ball, the inside measurement between the wings evidences a minimum amount of clearance, again preventing any fluttering or spinning of the ball, which action would normally shorten the life of the cage. Fluid passage capacity has not been decreased in the new design.

Numerous installations and repeated operations are reported to have proven that this cage offers many benefits. It was designed particularly for longer service in deep wells, but its use in shallow wells, or those of average pumping conditions is said to tend greatly to prolong the life of all the other valve parts, resulting in less frequent pulling jobs.

## Improved Limitorque Valve Operator Is Put on Market

The Philadelphia Gear Works, 330 West Forty-second Street, New York, has redesigned the Limitorque electric valve operating mechanism so that it is said to be more correct in principle and application.

The control consists of a self-contained reducing gear unit with mechanical and electrical limit built into the mechanism. The valve operating nut that raises and lowers the valve disc is incorporated in the casing and is supported by heavy duty Timken roller bearings.

The motor which operates at 1,800 r.p.m. is first reduced by a low ratio helical gear and the final reduction is by a steel and bronze worm gear. The whole mechanism is immersed in oil and needs no attention for six months after installation. Every moving part is enclosed, dust and moisture-proof for operating in any atmosphere or outdoors. It is made in three sizes which with two motors per frame allows of six combinations.

## Notes About Trade Literature

A four-page bulletin sent on request by the Foxboro Co., Foxboro, Mass., describes the Foxboro potentiometer indicating pyrometer.

—

The Lincoln Electric Co., Cleveland, Ohio, is mailing to those who ask for it a bulletin on "Ferroweld," an electrode for welding cast iron.

—

A circular describing the Impco governor, which has several new features, may be obtained from the Imperial Devices Co., 3065 Fifth Avenue, Chicago.

—

The Poole Foundry & Machine Co., Baltimore, Md., is distributing a 302-page catalog of machine moulded gears, listing approximately 10,000 different sizes, kinds and types.

—

The Poole Foundry & Machine Co., Woodberry, Baltimore, Md., has published for distribution an unusually complete catalog on flexible shaft couplings, with horsepower ratings, maximum speeds, dimensions, weights, etc.

—

The Baroid Sales Co., Second National Bank Building, Houston, Tex., is sending to those who ask for it a list of its local representatives keeping aquagel and baroid stocks in the field to aid in quick finding of stocks nearest to operations.

—

A 44-page catalog, illustrating and describing the "Caterpillar" Diesel Thirty-five tractor, the third Diesel model in this line, has been issued by the Caterpillar Tractor Co., Peoria, Ill. It includes large model pictures and action photographs.

—

The R. N. Brodie Co., manufacturer of Brodie Universal petroleum meters, has opened an office in Chicago. Sales and service for several Central states will be directed from this point. The office, at 59 East Van Buren Street, is in charge of G. F. Burnett.

—

Among interesting articles in the current issue of the Yellow Strand, published by the Broderick & Bascom Rope Co., St. Louis, Mo., is one describing interesting features of the Globe Oil & Refining Co.'s new plant in McPherson, Kans.

The Federal Motor Truck Co. reports that its dealer orders for 1933 show an increase of approximately 51 per cent over those of 1932.

—

Commercial application of activated alumina are described in a four-page brochure announced by the Aluminum Co. of America, Pittsburgh, Pa.

—

Sullivan drill steel furnaces are the subject of an eight-page bulletin distributed by the Sullivan Machinery Co., 400 North Michigan Avenue, Chicago.

—

"Performance and Test Standards for Self-priming Centrifugal Pumps" is the title for a 32-page handbook which may be obtained by writing to the LaBour Co., Inc., Elkhart, Ind.

—

The Air Preheater Corp., 60 East Forty-second Street, New York, N. Y., manufacturer of the Ljungstrom continuous regenerative counterflow air preheater, has issued a new bulletin, No. 933, illustrating various applications.

—

The Allen Manufacturing Co., Hartford, Conn., is mailing to those who ask for it an eight-page bulletin containing engineering data showing the holding power and the proper sizes of hollow screws to use in various kinds of cases.

—

Donavon B. Church has been transferred from the San Francisco branch office to the factory engineering department by the Mason-Neilan Regulator Co., Boston, Mass., manufacturer of automatic regulating and control equipment.

—

"Engineering Achievements of 1933," published by the Westinghouse Electric & Manufacturing Co., East Pittsburgh, Pa., is a 36-page booklet sent on request, recounting and illustrating some of the more important advances in the electrical field.

—

Frank Champion, general sales manager for the oil tool division of Byron Jackson Co., is on an extended trip through the Mid-Continent, after which he will spend part of February in the company's export offices, Graybar Building, New York, returning to California about March 15.

## National Tank Co., Occupying New Gulf Coast Home

The new home of the National Tank Co. in the Gulf Coast is at 3511 McKinney Avenue, Houston, Tex., where a complete stock of both welded and bolted tanks in all sizes is carried as well as complete stocks of oil and gas separators in all sizes.

This new office and warehouse is headquarters for the National Tank Co. in Texas, Louisiana, Arkansas and New Mexico, a wide territory under the supervision of Floyd Senter, district manager. Howard Ammerman is office manager in Houston, and James Ward is service manager in charge of all field crews.

## Men Well Known in the Equipment Field

The name of C. E. Reed, now in charge of the oil tools division of the Chicago Pneumatic Tool Co., has been closely associated for more than 20 years with

C. E. REED

advancements in the technique of rotary drilling operations. It was in 1912 that Mr. Reed began developing devices for use with various types of rotary bits. He invented the Reed roller bit and he continued in this field of work without interruption, one invention following another till at the present time he has the distinction of having contributed about 200 devices, all of them patented and recognized in oil fields throughout the world. Various of these inventions were devised to suit the particular needs of conditions met in different fields. Among outstanding inventions by Mr. Reed is the C-P roller bit, manufactured by the Chicago Pneumatic Tool Co.

In 1927 Mr. Reed retired from active business, following years of service with the Reed Roller Bit Co., Houston, Tex., but before the year had closed he was prevailed upon to serve as consultant for the Chicago Pneumatic Tool Co. In 1933 he relinquished his plans for retirement and assumed charge of the manufacture and sale of the company's oil field products. He resides in Wichita, Kans.

### S. & J. DEVELOPS NEW SAFETY

The Shand & Jurs Sales Co., 295 Madison Avenue, New York, has placed on the market a new float-operated high or low level safety for use on drip drums, boilers, working storage tanks and the like. Its function is to operate a klaxon, light, bell or whistle when the level of the liquid in the container reaches the danger point. It can also be used to make or break an electric circuit for controlling motor-operated valves or for any other purpose needing an automatic electric switch or gas valve. A patented feature provides for only one pipe connection to the container, which makes it easy to install and prevents it from being affected by surging conditions in the container.

# MARKET RECORD OF OIL SECURITIES

## Active Oil Stocks Listed on New York Stock Exchange

**Compiled by Carl H. Pforzheimer Co., 25 Broad Street, New York City, Members New York Stock Exchange and New York Curb Exchange**

| 1934 High | 1934 Low | Week ended Feb. 10 Sales | High | Low | Close | Stocks— | Total shares outstanding | Par value | Dividend rate | Payable or last paid | 1933 High | 1933 Low | 1932 High | 1932 Low | 1931 High | 1931 Low |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 50⅜ | 41½ | 6,400 | 50⅜ | 46 | 48 | Amerada Corp. | 774,875 | N.P. | 50cQ | 1-31-34 | 47⅝ | 18½ | 22¾ | 12 | 23 | 11¼ |
| 35¼ | 28¼ | 53,200 | 35¼ | 31⅛ | 32½ | Atlantic Refining | 2,673,834 | $25 | 25cQ | 3-15-34 | 32½ | 12⅜ | 21⅞ | 8⅝ | 23⅝ | 8⅝ |
| 10 | 7¾ | 62,100 | 10 | 8⅜ | 9 | Barnsdall Corp. | 2,186,385 | $5 | .... | 5-11-31 | 11 | 3 | 7 | 3⅜ | 14½ | 4 |
| 19¼ | 11⅛ | 240,300 | 19¼ | 15½ | 16⅞ | Columbia Gas & Elec. | 11,610,036 | N.P. | 12½cQ† | 2-15-34 | 28⅛ | 9 | 21 | 4¼ | 45⅝ | 11⅝ |
| 14⅛ | 9¾ | 201,900 | 14⅛ | 11⅞ | 13¼ | Consolidated Oil Corp. | 14,218,835 | N.P. | .... | ..... | 15¾ | 5 | 9 | 4 | 15⅞ | 4⅛ |
| 20¾ | 16½ | 71,900 | 20¾ | 18⅛ | 18¾ | Continental Oil of Delaware | 4,738,593 | $5 | .... | ..... | 19⅝ | 4⅞ | 9⅜ | 3⅝ | 12 | 5 |
| 21¾ | 15⅛ | 18,900 | 21¾ | 18½ | 19⅛ | General Asphalt | 387,149 | $10 | .... | 6-15-32 | 27 | 4⅝ | 15½ | 4¾ | 47 | 9⅝ |
| 5½ | 4½ | 7,300 | 5½ | 4½ | 4¾ | Houston Oil (new) | 1,098,618 | $25 | .... | 10-17-30 | 7⅜ | 1⅞ | 5⅜ | 1⅛ | 14⅛ | 3 |
| 2¾ | 1¾ | 2,500 | 2½ | 2 | 2 | Louisiana Oil Refining | 1,302,158 | N.P. | .... | ..... | 4 | ⅝ | 2¼ | ½ | 4½ | 1 |
| 14¾ | 11⅝ | 21,100 | 14¾ | 12⅜ | 13⅜ | Mid-Continent Petroleum | 1,857,912 | N.P. | .... | 2-16-31 | 16 | 3¾ | 8⅞ | 3¾ | 16¾ | 5 |
| 18¾ | 11½ | 7,600 | 18¾ | 15⅞ | 16 | National Supply of Delaware | 382,591 | $25 | .... | 5-15-31 | 28⅝ | 4 | 13 | 3½ | 70¼ | 5 |
| 15⅞ | 12⅜ | 50,200 | 15⅞ | 13½ | 14 | Ohio Oil Co. | 6,563,107 | N.P. | .... | 12-15-32 | 17⅝ | 4¾ | 11 | 5 | 19½ | 5⅛ |
| 8¼ | 6⅞ | 1,400 | 8¼ | 7½ | 7½ | Pacific Western Oil | 1,000,000 | N.P. | 25c‡ | 10-25-33 | 9½ | 3 | 8 | 3 | 15 | 2⅞ |
| 2⅜ | 1¼ | 1,700 | 2 | 1¾ | 1⅞ | Panhandle P. & R. | 198,770 | N.P. | .... | ..... | 4¼ | ⅜ | 1¼ | ¼ | 4¼ | ⅝ |
| 18¾ | 15⅛ | 53,800 | 18¾ | 16¼ | 16⅞ | Phillips Petroleum | 4,155,113 | N.P. | 25c | 2-15-34 | 18¾ | 4¾ | 8⅛ | 2 | 16⅝ | 4 |
| 16¾ | 12⅝ | 48,300 | 16¾ | 14⅜ | 14¾ | Plymouth Oil Co. | 990,261 | $5 | 25cQ | 12-21-33 | 17⅝ | 6¾ | 12½ | 6 | 19 | 6 |
| 14¼ | 10⅛ | 38,700 | 14¼ | 11⅞ | 12½ | Pure Oil | 3,038,370 | N.P. | .... | 9- 1-30 | 15⅜ | 2½ | 6½ | 2⅞ | 11⅞ | 3¼ |
| 38¾ | 36 | 3,000 | 38¾ | 37⅞ | 38 | Royal Dutch N. Y. shares | 432,224 | $14 | $1.07½ | 8-14-33 | 39¾ | 17⅝ | 23¾ | 12⅛ | 42⅝ | 13 |
| 35 | 25⅜ | 18,400 | 34⅞ | 29⅛ | 30⅛ | Seaboard Oil of Delaware | 1,204,460 | N.P. | 15cQ§ | 12-15-33 | 43⅜ | 15 | 20⅜ | 6⅝ | 20¾ | 5½ |
| 11½ | 7⅝ | 52,700 | 11⅜ | 9¾ | 10 | Shell Union Oil | 13,070,625 | N.P. | .... | 6-30-30 | 11⅝ | 4 | 8¾ | 2½ | 10¼ | 2½ |
| 89 | 58 | 3,900 | 84⅞ | 81 | 81 | Shell Union Oil pfd. | 400,000 | $100 | .... | 7- 1-31 | 61 | 28½ | 65¼ | 18 | 78 | 15 |
| 11¼ | 9 | 4,500 | 11¼ | 10 | 10 | Simms Petroleum | 461,000 | $10 | 25c | 1-17-34 | 12⅜ | 4⅞ | 7½ | 3¼ | 11 | 3½ |
| 11½ | 7⅞ | 8,000 | 11½ | 9⅞ | 10 | Skelly Oil | 1,008,514 | $25 | .... | 12-15-30 | 9⅞ | 3 | 5¾ | 2½ | 12⅞ | 2 |
| 19⅞ | 15⅛ | 205,000 | 19⅞ | 16¾ | 17¾ | Socony-Vacuum | 31,019,694 | $25 | 15c | 3-15-34 | 17 | 6 | 12¼ | 5¼ | 21 | 8⅝ |
| 42⅞ | 37½ | 37,200 | 42⅞ | 39⅛ | 40 | Standard Oil of California | 13,102,900 | N.P. | 25c | 3-15-34 | 45 | 19½ | 31⅞ | 15⅛ | 51¾ | 23⅛ |
| 38 | 34 | 700 | 37 | 34 | 34 | Standard Oil of Kansas | 200,000 | $10 | 50cQ | 4-30-34 | 39⅞ | 12¾ | 16½ | 7 | 19 | 7¾ |
| 49⅜ | 44¼ | 78,300 | 49⅜ | 46⅜ | 47⅜ | Standard Oil of New Jersey | 25,740,965 | $25 | 50cSA | 12-15-33 | 47½ | 22¾ | 37⅜ | 19⅞ | 52½ | 26 |
| 61¼ | 51½ | 1,800 | 61¼ | 58 | 58½ | Sun Oil | 1,591,110 | N.P. | 25cQ | 3-15-34 | 59 | 35 | 39⅞ | 24⅜ | 45¼ | 26¾ |
| 29⅜ | 23⅛ | 44,300 | 29⅜ | 26 | 26¾ | Texas Corp. | 9,486,417 | $25 | 25cQ | 1- 1-34 | 30⅛ | 10¾ | 18¼ | 9¼ | 36¼ | 9⅞ |
| 4½ | 3⅛ | 5,200 | 4½ | 4 | 4 | Texas Pacific Coal & Oil | 880,703 | $10 | .... | 12-31-29 | 6½ | 1⅜ | 4 | 1½ | 6½ | 1⅞ |
| 11⅜ | 8½ | 52,600 | 11⅜ | 10 | 10⅜ | Tide Water Associated | 5,613,800 | N.P. | .... | 2-16-31 | 11⅜ | 3⅛ | 5⅝ | 2 | 9 | 2⅛ |
| 72 | 64½ | 500 | 72 | 71 | 71 | Tide Water Associated pfd. | 666,524 | $100 | $1.50Q | 12-23-33 | 65¼ | 23½ | 60 | 20 | 68 | 20½ |
| 20½ | 18¼ | 16,100 | 20½ | 18½ | 18½ | Union Oil of California | 4,386,070 | $25 | 25cQ | 2-10-34 | 23⅜ | 8½ | 15⅝ | 8 | 26⅝ | 11 |
| 21 | 15⅝ | 8,500 | 21 | 19¼ | 19⅜ | Union Tank Car | 1,200,000 | N.P. | 30cQ | 3- 1-34 | 22¾ | 10½ | 19¼ | 11¾ | 25⅛ | 16 |
| 5⅛ | 3⅝ | 8,600 | 5⅛ | 4½ | 4½ | Wilcox Oil & Gas | 424,839 | $5 | .... | 5-10-28 | 5½ | 2 | 8¾ | 2¾ | 9⅜ | 2¾ |

*Ex-dividend. †Payable in 5 per cent convertible preferred stock. ‡Initial dividend. §Plus extras.

## Active Oil Stocks Listed on New York Curb

**Compiled by Carl H. Pforzheimer Co., 25 Broad Street, New York City, Members New York Stock Exchange and New York Curb Exchange**

| 1934 High | 1934 Low | Week ended Feb. 10 Sales | High | Low | Close | Stocks— | Total shares outstanding | Par value | Dividend rate | Payable or last paid | 1933 High | 1933 Low | 1932 High | 1932 Low | 1931 High | 1931 Low |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 36 | 32 | 250 | 36 | 35 | 35 | Buckeye Pipe Line Co. | 200,000 | $50 | 75cQ | 3-15-34 | 39¾ | 25 | 35 | 17½ | 56 | 30 |
| 4 | 3 | 11,200 | 3⅞ | 3⅛ | 3⅛ | Carib Syndicate | 579,000 | 25c | .... | ..... | 7¾ | ¼ | ¾ | ¼ | 2⅜ | ¼ |
| 126 | 118½ | 150 | 126 | 126 | 126 | Chesebrough Mfg. Co. | 120,000 | $25 | $1Q† | 12-30-33 | 129 | 71 | 90 | 53 | 129½ | 75 |
| 4¼ | 1¾ | 173,400 | 4¼ | 3⅛ | 3⅜ | Cities Service | 37,804,394 | N.P. | .... | 6- 1-32 | 6¼ | 1½ | 6⅞ | 1¼ | 20¾ | 5 |
| 3¼ | 2⅛ | 7,200 | 3¼ | 2¼ | 2¼ | Colon Oil | 2,200,000 | N.P. | .... | ..... | 4 | ¼ | 1¼ | ¼ | 3⅛ | ¼ |
| 3⅞ | 1⅝ | 600 | 2⅞ | 2⅜ | 2⅜ | Cosden Oil | 399,687 | $1 | .... | ..... | 3⅞ | 1⅜ | 2⅛ | ¼ | 3¾ | ⅜ |
| 13 | 9⅝ | 47,700 | 13 | 10¾ | 12 | Creole Petroleum | 6,974,356 | $5 | .... | ..... | 12 | 4¾ | 3⅛ | 1¾ | 3⅞ | 1⅝ |
| 7½ | 4¾ | 300 | 6⅞ | 6¾ | 6¾ | Darby Petroleum | 509,696 | $5 | 25c | 2-15-34 | 8 | 2⅛ | 7⅛ | 1⅝ | 2½ | 1⅝ |
| 2¼ | 1⅝ | 100 | 2 | 2 | 2 | Derby Oil & Refining | 263,162 | N.P. | .... | ..... | 2¾ | ⅞ | 3 | 1 | 6 | 1½ |
| 35¾ | 33 | No sales | .. | .. | .. | Eureka Pipe Line | 50,000 | $100 | $1Q | 2- 1-34 | 41¾ | 20 | 35 | 18 | 36 | 19 |
| 76¾ | 58½ | 9,600 | 75⅛ | 67 | 70 | Gulf Oil Corp. | 4,538,101 | $25 | .... | 10- 1-31 | 62 | 24 | 44¾ | 23 | 75½ | 25⅜ |
| 41 | 33¼ | 20,900 | 41 | 37½ | 39¼ | Humble Oil & Refining (new) | 8,923,935 | N.P. | 50cQ | 1- 1-34 | 105½ | 40 | 55 | 35⅝ | 72 | 44½ |
| 14¼ | 12⅝ | 5,400 | 14 | 13¼ | 13⅜ | Imperial Oil of Canada | 26,742,792 | N.P. | 12½c‡ | 3- 1-34 | 15⅞ | 6½ | 10⅞ | 6¼ | 18¼ | 7⅜ |
| 6½ | 4⅝ | 200 | 6½ | 6¼ | 6¼ | Indiana Pipe Line | 300,000 | $10 | 15cSA† | 11-15-33 | 8 | 3⅛ | 7½ | 2¾ | 21⅛ | 5½ |
| 23⅜ | 19⅜ | 14,000 | 23 | 21¾ | 22 | International Petroleum | 14,247,088 | N.P. | 28cQ‡ | 12-15-33 | 23½ | 8⅞ | 12¼ | 8 | 15½ | 7⅜ |
| 3⅛ | 2⅛ | 9,000 | 2⅞ | 2⅝ | 2⅝ | Louisiana Land & Exp. | 3,000,000 | N.P. | .... | ..... | 2¼ | ⅛ | 2½ | ½ | 2 | ½ |
| 5⅞ | 4⅜ | 300 | 5 | 5 | 5 | Lion Oil Refining | 270,000 | N.P. | .... | 10-27-30 | 9½ | 1¼ | 3½ | ⅞ | 6¾ | 1½ |
| 8⅜ | 5¾ | 7,200 | 8⅜ | 7⅛ | 7⅛ | Lone Star Gas | 5,382,723 | N.P. | 16cQ§ | 12-30-33 | 11⅞ | 4¾ | 11 | 3⅜ | 29 | 5½ |
| 5⅜ | 4 | 3,900 | 5⅜ | 5 | 5 | Mountain Producers | 1,682,182 | $10 | 15cQ | 1- 2-34 | 6½ | 2½ | 4¾ | 2⅛ | 5⅞ | 2 |
| 15¼ | 14 | 5,300 | 15 | 14⅝ | 14⅝ | National Fuel Gas | 3,810,183 | N.P. | 25cQ | 1-15-34 | 20 | 10 | 14⅝ | 8 | 26½ | 9¾ |
| 8⅞ | 8 | 1,000 | 8⅞ | 8½ | 8¾ | National Transit | 509,000 | $12.50 | 40cSA | 12-15-33 | 10 | 5½ | 10½ | 6 | 17⅓ | 5 |
| 2⅛ | 1¾ | 1,500 | 2⅛ | 2 | 2 | New Bradford Oil | 1,445,202 | $5 | 10c | 3-15-34 | 2⅛ | ½ | ⅞ | ¼ | 1½ | ½ |
| 1⅜ | 1 | 300 | 1⅜ | 1¼ | 1⅜ | New Mexico and Arizona | 1,000,000 | $1 | .... | ..... | 1⅞ | ½ | 1¼ | ⅜ | 3 | ¾ |
| 4 | 3 | 200 | 4 | 4 | 4 | New York Transit | 100,000 | $5 | 15cSA | 10-14-33 | 4⅞ | 3 | 9¾ | 7½ | 14½ | 5⅞ |
| 7 | 4⅝ | 1,100 | 7 | 5½ | 6⅜ | Northern Pipe Line | 120,000 | $10 | 25cSA | 1- 2-34 | 6⅛ | 4¼ | 5½ | 3⅛ | 35½ | 20 |
| 1⅞ | ⅞ | 8,300 | 1⅜ | 1¼ | 1¼ | Pantepec Oil | 1,608,700 | N.P. | .... | ..... | 3¾ | ⅛ | ⅝ | 1/16 | 2 | ⅜ |
| 3 | 1¼ | 1,200 | 2¾ | 2¼ | 2¼ | Ryan Consolidated | 296,931 | N.P. | .... | ..... | 4¼ | ⅝ | 2⅛ | ⅝ | 3 | ¾ |
| 7¼ | 5¾ | 2,800 | 7¼ | 6⅝ | 6⅞ | Salt Creek Producers | 1,496,859 | $10 | 20cQ | 2- 1-34 | 9¼ | 3½ | 5½ | 2⅞ | 7⅝ | 2¾ |
| 23⅞ | 17½ | 1,400 | 22⅞ | 20½ | 20½ | South Penn Oil | 1,200,000 | $25 | 25cQ | 12-30-33 | 22⅛ | 11 | 16½ | 9⅝ | 23⅞ | 9¼ |
| 4¾ | 4 | 800 | 4¾ | 4 | 4 | Southern Pipe Line | 100,000 | $10 | 10cSA | 3- 1-34 | 6 | 2⅛ | 10 | 3¾ | 17 | 7 |
| 43 | 41 | 100 | 43 | 41 | 43 | Southwest Penna. Pipe Lines | 35,000 | $50 | $1Q | 12-27-33 | 43 | 24½ | 37 | 27 | 42½ | 25 |
| 32¾ | 31⅛ | 35,800 | 32⅜ | 31⅛ | 31¼ | Standard Oil of Indiana | 15,941,894 | $25 | 25cQ | 3-15-34 | 34 | 17 | 25⅛ | 13⅛ | 38½ | 13½ |
| 17⅝ | 14⅝ | 7,700 | 17½ | 16 | 16⅜ | Standard Oil of Kentucky | 2,606,983 | $10 | 25cQ | 12-15-33 | 19¼ | 8⅜ | 15⅞ | 8⅞ | 23⅝ | 12⅛ |
| 16⅝ | 13½ | 400 | 16⅝ | 15¾ | 16¼ | Standard Oil of Nebraska | 190,822 | $25 | 25cQ | 3-20-34 | 20½ | 11 | 19 | 10¼ | 36½ | 16 |
| 27½ | 23¼ | 2,450 | 28½ | 24⅜ | 24⅜ | Standard Oil of Ohio | 753,740 | $25 | .... | 1- 3-33 | 41 | 15½ | 30⅛ | 15½ | 62½ | 23 |
| 1⅞ | 1/16 | 20,300 | 1⅞ | 1 | 1½ | Sunray Oil | 1,162,840 | $5 | .... | 4-15-31 | 1½ | ¼ | ⅝ | ⅛ | 5¼ | ¼ |
| 11 | 6¼ | 16,600 | 11 | 9 | 9½ | Texon Oil & Land | 936,028 | N.P. | 15c | 1- 2-34 | 13¾ | 6¼ | 10½ | 4½ | 12⅞ | 2½ |

*Ex-dividend. †Plus extras. ‡Payable in Canadian funds. §Payable in preferred stock.

Note—In comparing highs and lows for the several years in the two tables, it will be necessary to take into consideration cases where there have been stock split-ups.

# Osage Sale Adds $988,825 to Wealth of 2,229 Owners of Headrights

The owners of the 2,229 Osage headrights must think Santa Claus is back again, when they contemplate the $988,825 which they will split as a result of the latest sale of Osage leases, held in Pawhuska on February 7. Each headright grossed $443.62 in bonuses.

Eighty-six tracts were offered for sale and 82 were bid in, and while the greater part of the quarter sections were let go at small prices ranging from $100 upwards, the 82 tracts purchased averaged $12,136 per quarter section or $728.50 per acre.

The Phillips Petroleum Co. paid the highest price of the sale for Tract 78, northwest quarter of Section 15-25-6. Lewis Production Co. paid $161,000 for the southwest quarter of Section 16-24-7, while Champlin Refining Co. paid $81,000 for the northwest quarter of the same section. Champlin paid $106,000 for the northeast quarter of Section 15-25-6, and $76,000 for the southeast quarter. Skelly Oil Co. paid $92,000 for the southwest quarter of Section 3-25-6. These were the highest prices paid. Township 25-6 lies south of the Burbank Field and was recently brought into prominence by the discovery of the Mead Oil Co. and Sinclair Prairie Oil Co. in Section 10-25-6. Township 24-7 is in the Naval Reserve where big wells have been recently brought in from Bartlesville sand.

Champlin Refining Co. spent the most money at this sale, $312,625, for seven tracts, while the Phillips Petroleum Co. paid $230,800 for 10 tracts; Skelly Oil Co., $123,500 for three tracts, and Sinclair Prairie Oil Co. $50,500 for four tracts.

It was noticeable that the Gypsy Oil Co. and Carter Oil Co., while they were represented at the sale, held conservative views as to the value of the South Burbank and Naval Reserve leases for sale, and were not among the purchasers of the high price leases.

The Shell Petroleum Corp. and the Magnolia Petroleum Co. never participated actively in Osage sales. It seems those companies preferred to risk their money in other fields where the chances seemed as good and the original investment was lower.

Following is the tabulated result of the sale:

**TRACT NUMBER, DESCRIPTION, ACREAGE, NAME OF PURCHASER AND BONUS PRICE PAID AT OSAGE SALE, FEBRUARY 7, 1934**

| Tract | Description | Acres | Purchaser | Price |
|---|---|---|---|---|
| 1 | NW 27-22-11 | 160 | Ray Branstetter, Skiatook | $175 |
| 2 | SE 30-24-11 | 160 | Passed | |
| 3 | SW 30-24-11 | 160 | Phillips Petroleum Co. | 1,100 |
| 4 | NE 31-24-11 | 160 | D. F. McMahon, Tulsa | 100 |
| 5 | NW 31-24-11 | 160 | Phillips Petroleum Co. | 700 |
| 6 | NW 32-24-11 | 160 | D. F. McMahon | 100 |
| 7 | SE 29-25-11 | 160 | Charles R. Gray, Pawhuska | 100 |
| 8 | NE 32-25-11 | 160 | D. F. Millard, Pawhuska | 100 |
| 9 | NE 26-21-10 | 160 | Lindy Oil Co. and C. M. Peterson, Tulsa | 100 |
| 10 | NW 26-21-10 | 160 | Lindy Oil Co. and Peterson | 100 |
| 11 | SW 26-21-10 | 160 | Lindy Oil Co. and Peterson | 100 |
| 12 | NE 27-21-10 | 160 | Lindy Oil Co. and Peterson | 100 |
| 13 | SW 25-22-10 | 160 | L. L. Wiles, Skiatook | 100 |
| 14 | NW 6-21- 9 | 160 | L. G. Stanley, Pawhuska | 100 |
| 15 | SE 34-21- 9 | 160 | Ohio-Osage Oil Co. | 250 |
| 16 | SW 34-21- 9 | 160 | Ohio-Osage Oil Co. | 200 |
| 17 | NE 1-21- 8 | 160 | L. G. Stanley, Pawhuska | 100 |
| 18 | NW 1-22- 8 | 160 | Bay Oil Corp., Tulsa | 100 |
| 19 | SE 1-22- 8 | 160 | Bay Oil Corp. | 500 |
| 20 | SW 1-22- 8 | 160 | Bay Oil Corp. | 1,400 |
| 21 | NE 2-24- 8 | 160 | Passed | |
| 22 | NW 2-24- 8 | 160 | El Rey Oil Co. | 100 |
| 23 | SE 2-24- 8 | 160 | Passed | |
| 24 | SW 2-24- 8 | 160 | Passed | |
| 25 | SE 4-24- 8 | 160 | D. F. Millard, Pawhuska | 600 |
| 26 | SW 4-24- 8 | 160 | D. F. Millard, Pawhuska | 650 |
| 27 | SE 9-24- 8 | 160 | A. H. Kasishke, Tulsa | 700 |
| 28 | SW 10-24- 8 | 160 | A. H. Kasishke, Tulsa | 750 |
| 29 | SE 13-24- 8 | 160 | W. R. Huycke, Sapulpa | 1,900 |
| 30 | NW 16-24- 8 | 160 | Norbla Oil Corp., Tulsa | 100 |
| 31 | SE 17-24- 8 | 160 | Norbla Oil Corp. | 100 |
| 32 | SW 17-24- 8 | 160 | Norbla Oil Corp. | 750 |
| 33 | SE 19-24- 8 | 160 | Continental Oil Co. | 1,400 |
| 34 | SE 21-24- 8 | 160 | Elfred Beck, Tulsa | 500 |
| 35 | SW 22-24- 8 | 160 | A. H. Kasishke, Tulsa | 1,400 |
| 36 | NW 36-26- 8 | 160 | Phillips Petroleum Co. | 850 |
| 37 | NW 3-22- 7 | 160 | Phillips Petroleum Co. | 750 |
| 38 | 8½ NE 25-22- 7 | 80 | Norbla Oil Corp. | 100 |
| 39 | SE 25-22- 7 | 160 | Norbla Oil Corp. | 100 |
| 40 | SW 25-22- 7 | 160 | H. F. Worley, Tulsa | 675 |
| 41 | NW 5-23- 7 | 160 | Elfred Beck, Tulsa | 250 |
| 42 | SW 5-23- 7 | 160 | Norbla Oil Corp. | 600 |
| 43 | NE 6-23- 7 | 160 | Elfred Beck, Tulsa | 325 |
| 44 | SE 6-23- 7 | 160 | Empire Refining Co. | 475 |
| 45 | NE 10-23- 7 | 160 | Champlin Refining Co. | 24,000 |
| 46 | SW 11-23- 7 | 160 | Bay Oil Corp., Tulsa | 11,000 |
| 47 | SW 14-23- 7 | 160 | Bay Oil Corp., Tulsa | 9,900 |
| 48 | SE 30-23- 7 | 160 | S. J. Sarkeys, Ada | 100 |
| 49 | SW 30-23- 7 | 160 | Phillips Petroleum Co. | 100 |
| 50 | NE 31-23- 7 | 160 | Elfred Beck | 100 |
| 51 | NW 31-23- 7 | 160 | Elfred Beck | 150 |
| 52 | NE 6-24- 7 | 160 | Ohio Osage Oil Co. | 7,800 |
| 53 | NW 6-24- 7 | 160 | Ohio Osage Oil Co. | 5,300 |
| 54 | SE 6-24- 7 | 160 | Champlin Refining Co. | 9,000 |
| 55 | SW 6-24- 7 | 160 | H. S. Attleberger, Tulsa | 6,300 |
| 56 | NE 10-24- 7 | 160 | Continental Oil Co. | 4,900 |
| 57 | SW 11-24- 7 | 160 | Charles R. Gray, Pawhuska | 950 |
| 58 | NW 16-24- 7 | 160 | Champlin Refining Co. | 81,000 |
| 59 | SW 16-24- 7 | 160 | Lewis Production Co., Tulsa | 161,000 |
| 60 | NE 20-24- 7 | 160 | Lewis Production Co., Tulsa | 20,000 |
| 61 | SW 35-24- 7 | 160 | Bay Oil Corp. | 15,900 |
| 62 | SE 18-25- 7 | 160 | Norbla Oil Corp., Tulsa | 275 |
| 63 | SW 18-25- 7 | 160 | Norbla Oil Corp., Tulsa | 800 |
| 64 | NW 19-25- 7 | 160 | Norbla Oil Corp., Tulsa | 800 |
| 65 | NE 11-23- 6 | 160 | P. F. O'Herin, Cushing | 200 |
| 66 | NW 11-23- 6 | 160 | Empire Oil & Refining Co. | 100 |
| 67 | SE 11-23- 6 | 160 | Mid-Co Oil Co., Tulsa | 200 |
| 68 | SW 11-23- 6 | 160 | Phillips Petroleum Co. | 350 |
| 69 | NE 22-23- 6 | 160 | Empire Oil & Refining Co. | 200 |
| 70 | NW 22-23- 6 | 160 | Mid-Co Oil Co. | 225 |
| 71 | SE 22-23- 6 | 160 | Phillips Petroleum Co. | 400 |
| 72 | SW 22-23- 6 | 160 | Champlin Refining Co. | 125 |
| 73 | SW 1-24- 6 | 160 | Sinclair Prairie Oil Co. | 9,500 |
| 74 | NW 12-24- 6 | 160 | Sinclair Prairie Oil Co. | 11,500 |
| 75 | SW 3-25- 6 | 160 | Skelly Oil Co. | 92,000 |
| 76 | SE 6-25- 6 | 160 | Continental Oil Co. | 10,000 |
| 77 | NE 15-25- 6 | 160 | Champlin Refining Co. | 106,000 |
| 78 | NW 15-25- 6 | 160 | Phillips Petroleum Co. | 201,000 |
| 79 | SE 15-25- 6 | 160 | Champlin Refining Co. | 76,000 |
| 80 | NE 35-25- 6 | 160 | Champlin Refining Co. | 17,500 |
| 81 | NW 35-25- 6 | 160 | Sinclair Prairie Oil Co. | 13,500 |
| 82 | SE 35-25- 6 | 160 | Sinclair Prairie Oil Co. | 16,000 |
| 83 | SW 35-25- 6 | 160 | Skelly Oil Co. | 15,500 |
| 84 | NW 26-26- 6 | 160 | Skelly Oil Co. | 16,000 |
| 85 | NE 27-26- 6 | 160 | Phillips Petroleum Co. | 25,000 |
| 86 | NW 36-27- 5 | 160 | Phillips Petroleum Co. | 550 |
| Total | | 13,680 | Total | 988,825 |

## Wildcat Operations in Gulf Coast

(Continued from Page 78)

Texas Gulf Prod. Co.'s No. 3-H Kirby, 332 ft. W of No. 6-H, 70 ft. N of S line, Henry Griffith League (W.O.) ..... T.D. 5,024 ft.; sidetracked at 3,179-5,022 ft; P.B. 3,950 ft; drlg. out cmt.

Texas Gulf Prod. Co.'s No. 4 Wilburn, Wm. Hodges Sur., 330 ft. N of S line, 50 ft. W of E line ..... Drlg. salt 1,358 ft.

Yount Lee Oil Co.'s No. 23 Chambers County, Wm. Bloodgood Sur., 116.9 ft. S of N line and 347 ft. W of E line ..... Drlg. hard sand and lime rock 1,082 ft.

Yount Lee Oil Co.'s No. 7 Phillips, offset Sun Oil Co.'s No. 18 Wilburn ..... Drlg. salt 2,630 ft.

Yount Lee Oil Co.'s No. 8 Phillips, Wm. Hodges Sur. .. Derrick.

**ORCHARD—FORT BEND COUNTY**

Gulf Prod. Co.'s No. 38 Moore, James Frazier Sur., 380 ft. E, 100 ft. S of No. 31 ..... Drlg. hard shale and lime 3,928 ft.

**RABBS RIDGE—FORT BEND COUNTY**

Humble Oil & Ref. Co. and Gulf Prod. Co.'s No. 10-A George, J. Rabb Sur., E of No. 9-A ..... Drlg. shale 5,015 ft.

Humble O. & R. Co.'s No. 19-B Lockwood & Sharp, J. Rabb Sur. ..... Comp. 26 bbls. in 24 hrs.; T.D. 5,360 ft.

Humble O. & R. Co.'s No. 22-B Lockwood & Sharp, J. Rabb Sur. ..... Drlg. lime 3,770 ft.

Texas Co.'s No. 2 Sherman McCall, Samuel Kennedy Sur., 665 ft. N and 990 ft. W of SE cor. of lease .... Drlg. sandy shale 4,241 ft.

**HIGH ISLAND—GALVESTON COUNTY**

Yount Lee Oil Co.'s No. 4 Broussard & Orme, M. Dunman Sur., 129 ft. SW of No. 3 ..... No report.

Yount Lee Oil Co.'s No. 39 Cade, N. Fitzsimmons Sur., 1,000 ft. from W line, 580 ft. from S line of lease.. Drlg. shale and sand 3,310 ft.

Yount Lee Oil Co.'s No. 2-B Cade, 170 ft. from N line, 100 ft. from E line of 40-ac. lease, N. Fitzsimmons Sur. ..... Drlg. hard sand 4,205 ft.

Yount Lee Oil Co.'s No. 2 Mathis, M. Dunman Sur., direct offset No. 1 Spencer ..... Rig.

Yount Lee Oil Co.'s No. 20 Smith, 1,210 ft. from W line, 1,790 ft. from N line of 200-ac. tract, Dunman Sur. ..... Sand; S.D. 4,358 ft.

Yount Lee Oil Co.'s No. 21 Smith, M. Dunman Sur., 360 ft. from W line, 1,485 ft. from N line of lease.. Drlg. hard sand 2,975 ft.

**ARRIOLA—HARDIN COUNTY**

Republic-Houston Oil Co.'s No. 4 Arriola fee, 2,150 ft. S of N line, 5,050 ft. E of W line of lease, Arriola Sur. ..... No report.

**BATSON—HARDIN COUNTY**

Danciger O. & R. Co.'s No. 2 Hooks, W. Donoho Sur., 330 ft. E of CWL, Blk. 24 ..... Heaving shale 4,411 ft.

**SARATOGA—HARDIN COUNTY**

Rio Bravo Oil Co.'s No. 106 Jordit ..... Drlg. gumbo 427 ft.

Seismo Oil Co.'s No. 1 Casewell, 940 ft. S of NW cor. and 600 ft. from E line, H.B.B.&C. Sur. ..... Drlg. hard sand 3,225 ft.

**SOUR LAKE—HARDIN COUNTY**

Arlis Pet. Co.'s No. 1 Sour Lake Bank, H.&T.C. Sur., NW cor. Blk. 11, Sec. 69 ..... No report.

**GOOSE CREEK—HARRIS COUNTY**

Anderson et al's No. 1 Harral, Wm. Scott Sur., 600 ft. W and N from Humble's No. 1 Harral ..... S.D. 3,512 ft.

H. J. DeArman's No. 1 G. Adey, Wm. Scott Sur., 505 ft. from W line, 130 ft. from S line of lease..... T.D. 5,301 ft.; P.B. to 4,250 ft.; rigging up to pump.

Gulf Prod. Co.'s No. 13 Tabbs fee, Wm. Scott Sur. .... Drlg. sand and boulders 882 ft.

Humble O. & R. Co.'s No. 79 Simms-Smith, Wm. Scott Sur., 50 ft. from N line, 150 ft. from W line of most southerly NW cor. ..... Rig.

Sun Oil Co.'s No. 9 Wright, Wm. Scott Sur., 36 ft. from N line, 50 ft. from E line of lease ..... Drlg. gumbo 681 ft.

**HUMBLE—HARRIS COUNTY**

Texas Co.'s No. 47 Stevenson, J. B. Stevenson Sur., 859 ft. E, 457 ft. S of NW cor. Lot 1-A ..... Derrick.

**PIERCE JUNCTION—HARRIS COUNTY**

Rio Bravo Oil Co.'s No. 15-A Settegast (W.O.), J. Kopman Sur. ..... T.D. 4,475 ft.; milling out 4,222 ft.

Rio Bravo Oil Co.'s No. 26-A Settegast, J. Kopman Sur. No. 44, 1,210 ft. N line, 750 ft. E line of "A" lease ..... T.D. 5,843 ft.; sidetracked 4,250 ft.; drlg. sticky shale 4,496 ft.

**TOMBALL—HARRIS COUNTY**

Amerada Pet. Corp. and Stanolind O. & G. Co.'s No. 2 Fletcher, Joseph House Sur., 163 ft. from W line, 500 ft. from S line ..... Drlg. shale 1,262 ft.

Amerada Pet. Corp. and Stanolind O. & G. Co.'s No. 2 Nelson, Joseph House Sur. ..... Drlg. shale 4,910 ft.

Amerada Pet. Corp. and Stanolind O. & G. Co.'s No. 3 Otto Rudel, Joseph House Sur., 463 ft. from N line, 128 ft. from E line of 64-ac. tract ..... Drlg. shale 1,175 ft.

Humble O. & R. Co.'s No. 1-A Brautigan, J. Edwards Sur., 500 ft. from S line, 500 ft. from E line of lease. Tested dry gas 5,628 ft.; D.D.

Humble O. & R. Co.'s No. 1 F. J. Holderrith, C. N. Pillot Sur., 466 ft. out of SW cor. ..... Comp. 28 bbls. per hr., 5,552 ft.

Humble O. & R. Co.'s No. 2 Emil Doege, C. Goodrich Sur., 300 ft. from E line, 466 ft. from S line of 90 acres ..... Derrick.

Humble O. & R. Co.'s No. 1 W. Hoffman, Joseph House Sur., 466 ft. W of E line of W. W. Baker tract and 318 ft. N of S line ..... Drlg. shale 5,135 ft.

Humble O. & R. Co.'s No. 1 Hempel, J. N. Hooper Sur., 500 ft. from E line, 466 ft. from S line of 105 acres.. Cmtd. csg. 5,574 ft.

Humble O. & R. Co.'s No. 1 Phillip Holderith, C. N. Pillot Sur., 466 ft. out of SE cor. of 90 acres..... Drlg. shale 950 ft.

Humble O. & R. Co.'s No. 2 L. B. Moody, J. H. Edwards Sur., 817 ft. S of No. 1 ..... Derrick.

Humble O. & R. Co.'s No. 1 Gus Petrick, J. N. Hooper Sur. "A" 372, 466 ft. out of NW cor. 160-ac. tract.. Rig.

Humble O. & R. Co.'s No. 1-B Quilter, A. Senchal Sur., 2,100 ft. S of N line, 1,826 ft. E of W line of tract ..... Cmtd. csg. 5,568 ft.

Skelly Oil Co.'s No. 1 Schultz, J. H. Edwards Sur., 456 ft. from S line, 404 ft. from E and W lines ..... Derrick.

Stanolind O. & G. Co.'s No. 1 Brautigan, 466 ft. from N line and 575 ft. from E and W lines of tract, N. Anderson Sur. ..... Shale 5,765 ft.

Texas Co.'s No. 1 Sam Lewis, C. N. Pillot Sur., 466 ft. N 1 deg. W and 550 ft. N 89 deg. E of SW cor. of lease ..... Rig.

**ESPERSON—LIBERTY COUNTY**

General Crude Oil Co.'s No. 7 Davis (W.O.), Duncan Sur.. No report.

General Crude Oil Co.'s No. 18 Esperson, C. W. Fisher Sur., 400 ft. S of No. 7 (W.O.) ..... Hole bridged 4,020 ft.

**HULL—LIBERTY COUNTY**

Gulf Prod. Co.'s No. 95 Phoenix, Jesse Devore Sur. .... Drlg. sticky shale 4,308 ft.

Houston Prod. Co.'s No. 5 Orgain, Jesse Devore Sur., 100 ft. S of No. 4 ..... Derrick.

Houston Prod. Co.'s No. 6 Orgain, Jesse Devore Sur., 250 ft. S of No. 4 ..... Derrick.

Humble O. & R. Co.'s No. 34 Hooks-Guedry, Jesse Devore Sur., 443 ft. from W line, 50 ft. from S line of lease ..... Drlg. shale 5,000 ft.

Humble O. & R. Co.'s No. 13 Hooks-Spell, Jesse Devore Sur., 50 ft. from S line, 150 ft. from E line of lease ..... Drlg. shale 4,738 ft.

Miramar Oil Corp.'s No. 7-A Phoenix, Jesse Devore Sur., 50 ft. from W line, 80 ft. from S line of 25 acres ..... Comp. 480 bbls.; ½-in. choke, 4,972 ft.

Liberty-Hull Oil Co.'s No. 3 McAlister, Jesse Devore Sur., 130 ft. from N line in center of lease E and W. Rig.
Miramar Oil Corp.'s No. 3-B Phoenix, Jesse Devore Sur., 50 ft. from N line, 250 ft. from W line of lease ..... Drlg. shale 5,116 ft.
Sun Oil Co.'s No. 3-A Carr, Jesse Devore Sur., 196 ft. W of No. 2-A Carr ..... Drlg. shale and lime 4,052 ft.
Republic Prod. Co.'s No. 150 Dolbear, J. Devore Sur., 250 ft. E of No. 81 ..... Drlg. shale 4,256 ft.
Texas Co.'s No. 5 Barrow fee, J. Devore Sur., 533 ft. S, 150 ft. W of NE cor. of lease ..... Reset screen 4,955 ft.
Texas Co.'s No. 6 Barrow fee, 383 ft. S, 150 ft. W from NE cor. of tract, Jesse Devore Sur. ..... Derrick.
Yount Lee Oil Co.'s No. 7 Hooks Spell, Jesse Devore Sur., 100 ft. E of No. 5 ..... Rig.
Yount Lee Oil Co.'s No. 3 Hooks fee, Jesse Devore Sur., 150 ft. from NW line, 150 ft. from SW line of 5-ac. lease ..... Drlg. shale 4,528 ft.

CONROE—MONTGOMERY COUNTY

Adeltex Oil Co.'s No. 2 Liewelen, R. G. Hamlett Sur., 466 ft. N, 159 ft. W, SE cor. lease ..... Drlg. shale 3,410 ft.
American Liberty Oil Co.'s No. 1-C Harris Est., J. Davis Sur., 330 ft. from S line, 343 ft. from E line of lease ..... No report.
Feltex Oil Co.'s No. 1-B South Tex. Dev., L. Smith Sur., 571 ft. W line, 467 ft. S line of tract ..... Comp. 20 bbls. hr.; ¼-in. choke, 5,107 ft.
Gulf Coast Drlg. & Prod. Co.'s No. 20-A Keystone Mills, A. S. James Sur. ..... Shale 5,135 ft.; cmtd. csg.
Harrison & Abercrombie's No. 4 Alexander, John McHorse Sur., 356 ft. from E line, 425 ft. from S line of lease ..... Drlg. shale 2,210 ft.
Humble O. & R. Co.'s No. 4 Am. Nat., Wilson Strickland Sur. ..... Comp. 69 bbls. per hr.; 5,119 ft.
Humble Oil & Ref. Co.'s No. 20 Keystone Mills, A. Steele Sur., 793 ft. W of No. 19 ..... Shale 5,126 ft.; cmtd. csg.
Humble O. & R. Co.'s No. 33 Keystone Mills, A. Steele Sur., 1,200 ft. from E line, 750 ft. from S line of lease ..... Drlg. shale 4,997 ft.
Humble O. & R. Co.'s No. 15 Madeley, Ransom House Sur., 978 ft. SW of No. 7 and 869 ft. NE of No. 5 .... Drlg. shale 3,231 ft.
Humble O. & R. Co.'s No. 16 Madeley, Ransom House Sur. ..... Drlg. shale 3,878 ft.
Humble O. & R. Co.'s No. 48 Moore, Lemuel Smith Sur., 933 ft. SW of No. 39 ..... Drlg. shale 4,854 ft.
Humble O. & R. Co.'s No. 3 A. Morehead, Trevathan Sur.. Drlg. shale 4,422 ft.
Humble O. & R. Co.'s No. 28-A South Tex. Dev. Co., T. C. Howell Sur., 1,450 ft. S line and 9000 ft. W line. Drlg. shale 2,769 ft.
Humble O. & R. Co.'s No. 5-D South Tex. Dev., T. &N.O. Sur., 700 ft. E of No. 4-D ..... Sand 5,134 ft.
Mullendore et al's No. 1 South Tex. Dev. Co., T.&N.O. Sur. No. 5, center of 10-ac. tract ..... Drlg. shale 1,410 ft.
Pine Tree Oil Co.'s No. 1 South Tex. Dev. Co., T.&N. O. Sur. No. 13, 1,600 ft. W line, 810 ft. S line of Sur.. Sand 5,105 ft.
Sun Oil Co.'s No. 11 Keystone Mills, A. Steele Sur., 1,000 ft. S of No. 10, 871 ft. W of No. 7 ..... Spudded.
Sun Oil Co.'s No. 10 Keystone Mills, A. Steele Sur. .... Comp. 2,340 bbls.; ¼-in. choke, 5,131 ft.
Texas Co.'s No. 23 Mooćy, Ransom House Sur., 1,332 ft. N 75° E and S 15° E 162 ft. from lower NW cor. of lease ..... Drlg. sand and shale 2,810 ft.
Tide Water Oil Co.'s No. 3 American Natl. Bank, Wilson Strickland Sur. ..... Drlg. sandy shale 4,023 ft.
Tide Water Oil Co.'s No. 33-A Lewis, C. B. Stewart Sur., 3,851½ ft. from N line, 1,581½ ft. from E line of lease ..... Cmtd. 10¾-in. csg. 940 ft.
Tide Water Oil Co.'s No. 34-A Lewis, C. B. Stewart Sur., 2,140 ft. from N line, 1,590 ft. from E line of lease ..... Drlg. shale and lime 956 ft.
Tide Water Oil Co.'s No. 35-A Lewis, C. B. Stewart Sur., 1,596 ft. W of E line, 4,985 ft. N of S line of lease ..... Drlg. soft sand 2,410 ft.
Tide Water Oil Co.'s No. 32-B Lewis, C. B. Stewart Sur., 1,188 ft. W of E line, 1,497 ft. N of S line of lease ..... Cmtd. 10¼-in. csg. 935 ft.

PORT NECHES—ORANGE COUNTY

Texas Co.'s No. 2 Orange Natl. Bank, Jacob Beaumont Sur., 1,538 ft. W and 200 ft. S of NE cor. of lease ... Drlg. sand and boulders 1,095 ft.
Texas Co.'s No. 2-B Polk, 695 ft. N, 150 ft. S of NE cor. of N. Jacob Beaumont Sur. ..... Drlg. shale 5,332 ft.

LIVINGSTON—POLK COUNTY

Gist Oil Co.'s No. 1 Kingsbury County Holding Corp. A. Viesca Sur., 150 ft. N at R/A and 193 ft. E along S line of tract ..... Standing 4,242 ft.
Polk County Oil Co.'s No. 3 Davis-Holmes, A. Viesca Sur., 1,263 ft. SW line, 1,266 ft. SE line ..... Rig.

GRETA—REFUGIO COUNTY

Atlantic Oil Prod. Co. et al's No. 5-A J. J. O'Brien, 933 ft. E of No. 3-A, 466 ft. S of N line ..... No report.
Blanco Oil Co.'s No. 4-A J. J. O'Brien, M. J. Ximines Sur., 466 ft. from N line, 910 ft. from E line of 107-ac. lease ..... No report.
Floboots Oil Corp.'s No. 1 M. C. Bauer, 330 ft. N line, 1,734 ft. from W line, J. M. Ximines Sur. ..... No report.
Humble O. & R. Co.'s No. 3 Fannie Heard, 825 ft. E of most northerly NW cor. of lease and 466 ft. S of most northerly line at R/A, N. S. Crunk Sur... Derrick.
Humble O. & R. Co.'s No. 2 J. F. B. Heard, J. H. Peoples Sur., 466 ft. S line, 933 ft. E of No. 1.... Drlg. lime 3,300 ft.
Humble O. & R. Co.'s No. 1 Wilder, 466 ft. S line, 313 ft. E line, J. T. McGrew Sur. ..... Drlg. sand 4,476 ft.
Edwin M. Jones' No. 6-A O'Brien, N. S. Crunk Sur., 1,399 ft. from E line, 466 ft. from S line of tract..... No report.
Edwin M. Jones' No. 7-A O'Brien, N. S. Crunk Sur. ... Derrick.
Nesral Oil Co.'s No. 1 V. E. Heard, 466 ft. N line, 366 ft. W line, M. J. Ximines Sur. ..... T.D. 6,010 ft.; drlg. sidetracked hole 5,500 ft.
Nesral Oil Co.'s No. 3 W. Heard, 710 ft. W line, 1,510 ft. N line of lease, M. J. Ximines Sur. ..... Drlg. shale and lime 5,305 ft.
United Prod. Co.'s No. 6 Lambert, C. S. Hardwick Sur., Blk. 2, 2,466 ft. from N line, 506 ft. from E line... Drlg. plug 4,393 ft.

CLAY CREEK—WASHINGTON COUNTY

Sun Oil Co.'s No. 8 Janner, J. W. Perry Sur., 300 ft. SE of No. 7, 150 ft. SW of the creek ..... Drlg. sandy shale 944 ft.
Sun Oil Co.'s No. 3 Schermer, N. Clay Sur., 330 ft. NW, 330 ft. SW line of lease ..... Coring sandy shale 2,548 ft.

## SOUTH LOUISIANA FIELDS

BLACK BAYOU—CAMERON PARISH

Shell Pet. Corp.'s No. 18 Watkins, 2,515 ft. S, 650 ft. W of NE cor. Sec. 18-12s-12w ..... Dredging canal to location.

CAMERON MEADOWS—CAMERON PARISH

Burton-Sutton Oil Co.'s No. 3 School Land, 155 ft. N and 2,974 ft. E of SW cor. of Sec. 16-14s-13w ..... No report.
Humble O. & R. Co.'s No. 5 Cameron Meadows, 2,260 ft. W, 28 ft. S of NE cor. Sec. 21-14s-14w..... Drlg. shale 1,258 ft.
Humble O. & R. Co.'s No. 6 Cameron Meadows, 1,866 ft. W, 150 ft. S of NE cor. Sec. 21-14s-13w ..... Spudded.

EDGERLY—CALCASIEU PARISH

Union Sulphur Co.'s No. 1 Hunter, 210 ft. E, 1,260 ft. N of SW cor. SE Sec. 21-9s-11w ..... Drlg. sandy shale 5,089 ft.
Union Sulphur Co.'s No. 1 La. Prairie Narrone, 1,061 ft. N, 250 ft. W of SW cor. SW Sec. 21-9s-11w..... Cmtd. 10-in. csg. 1,142 ft.
Yount Lee Oil Co.'s No. 1 Sulphur Mining Co., 150 ft. S, 300 ft. W, NE cor. Sec. 33-9s-11w ..... Sandy shale 7,936 ft.; killed gas pressure.

CHOCTAW—IBERVILLE PARISH

Standard Oil Co. of La.'s No. 4 Gay, 2,350 ft. S, 175 ft. E of NE cor. Sec. 52-9s-11e ..... Derrick.

GARDEN ISLAND—PLAQUEMINES PARISH

Texas Co.'s No. 10 Garden Island ..... T.D. 1,875 ft.

GUEYDAN—VERMILLION PARISH

Pure Oil Co.'s No. 6 Alliance Trust, 667 ft. E, 1,787 ft. S line of lease, Sec. 34-11s-1w..... Drlg. sticky shale 3,642 ft.
Pure Oil Co.'s No. 5 Mulvey, 500 ft. from No. 2 Mulvey, in line with Nos. 1 and 2 ..... Drlg. sand and shale 5,295 ft.

HACKBERRY—CAMERON PARISH

Gulf Ref. Co.'s No. 13-A Irwin ..... Drlg. gumbo 585 ft.
Pop Oil Co.'s No. 1 Yount Lee, 3,996 ft. W, 100 ft. N of SE cor. Sec. 19-12s-10w ..... To pump 4,182 ft.
Red Kelly Oil Co.'s No. 1 Duhon, 200 ft. S, 500 ft. E, NW cor. Sec. 27-12s-10w ..... Drlg. sticky shale 1,612 ft.
Texas Co.'s No. 11-B State ..... Drlg. sandy shale and lime 5,145 ft.
Union Sulphur Co.'s No. 1 Barbee est., 1,720 ft. N line, 320 ft. E of SW cor. Sec. 13-12s-10w..... Tested S.W. 7,598 ft.; pulling screen.
Union Sulphur Co.'s No. 7 Humble lease, 1,010 ft. N, 661 ft. E of SW cor. Sec. 13-12s-10w ..... T.D. 6,542 ft. in salt; sidetracking 5,559 ft.
Yount Lee Oil Co.'s No. 11 Gulf land, Sec. 14-12s-10w.. Rig.

IOWA—CALCASIEU AND JEFF DAVIS PARISHES

Barnsdall Oil Co.'s No. 2 Fontenot, 990 ft. N and 330 ft. E of SW cor. of Sec. 7-9s-6w ..... Gumbo 1,518 ft.; cmtd. 10¾-in. csg.
Magnolia Pet. Co.'s No. 2 James Bowman, 660 ft. W, 330 ft. N of SE cor. NE SW Sec. 12-9s-7w..... Derrick.
Shell Pet. Corp.'s No. 1 Arcoin, 330 ft. out of NW cor. 80-ac. tract, Sec. 7-9s-6w ..... Drlg. hard shale and sand 6,747 ft.
Shell Pet. Corp.'s No. 5 A. D. Fontenot, 330 ft. out of SE cor. W½ SW Sec. 7-9s-6w ..... Drlg. sand and shale 6,026 ft.
Shell Pet. Corp.'s No. 6 Fontenot, Sec. 7-9s-6w, 900 ft. N, 330 ft. W of SE cor. of lease ..... Derrick.

JENNINGS—ACADIA PARISH

Yount Lee Oil Co.'s No. 13 Houssiere-Latrielle, Sec. 47-9s-2w, 300 ft. E of No. 12 ..... Drlg. hard sand 7,211 ft.

LAKE BARRE—TERREBONNE PARISH

Texas Co.'s No. 10 L.L.&E., 4,643 ft. S, 503 ft. W of NW cor. Sec. 30-21s-20 ..... Drlg. rock 2,400 ft.
Texas Co.'s No. 23 State-Lake Barre, 150 ft. northerly from No. 18 ..... Drlg. 6,620 ft.
Texas Co.'s No. 20 State-Lake Barre, 392 ft. northerly from No. 22, Sec. 30-21s-20e ..... Drlg. anhydrite 1,368 ft.

LEESVILLE—LAFOURCHE PARISH

Gulf Ref. Co.'s No. 1 Community, Blk. E, 151 ft. N of S line, 150 ft. E of E bank of Bayou La Fourche, Sec. 23-21s-22e ..... Abd. location.
Gulf Ref. Co.'s No. 1 Le Fort, 100 ft. N of S line, 100 ft. W of N bank of Bayou La Fourche, Sec. 33-21s-22e ..... Dry and abd. in shale 7,300 ft.
Texas Co.'s No. 8 L.L.&E., 2,321 ft. due S, 450 ft. W from NE cor. Sec. 27-21s-22e ..... Salt 4,508-4,666 ft.
Texas Co.'s No. 10 L.L.&E., 3,500 ft. due S, 375 ft. due W of NE cor. Sec. 27-21s-22e ..... Salt 3,884-96 ft.; cmtd. 3,365 ft.

LOCKPORT—CALCASIEU PARISH

Magnolia Pet. Co.'s No. 7 Farquaher, 330 ft. S, 174 ft. W of NE cor. SW NE Sec. 8-10s-9w ..... Derrick.
Magnolia Pet. Co.'s No. 11 Bordages, 660 ft. N, 490 ft. W of SE cor. NE NE Sec. 8-10s-9w ..... Drlg. shale 6,690 ft.
Magnolia Pet. Co.'s No. 4-A Watkins fee, 685 ft. E, 200 ft. N of SW cor. NW NE Sec. 8-10s-9w..... Drlg. sticky shale 6,961 ft.
Union Sulphur Co.'s No. 1 Farquaher, 200 ft. S and W lines, NE cor. SW SE Sec. 36-11s-10w, 2-ac. tract ....Drlg. shale 7,450 ft.
Union Sulphur Co.'s No. 2 Moss (W.O.), 850 ft. S, 210 ft. W of NE cor. NW SE ..... Drlg. sandy shale 6,167 ft.

PORT BARRE—ST. LANDRY PARISH

Gulf Ref. Co.'s No. 5 Wilson-Cockran, 600 ft. N, 910 ft. E of No. 2, Sec. 4-9s-5e ..... Drlg. sand and shale 3,338 ft.
Texas Co.'s No. 17 Botney Bay, 1,800 ft. S 8 deg. W, 600 ft. N 82 deg. most southern NE 560 deg. tract, Sec. 4-9s-5e ..... Derrick.
Texas Co.'s No. 19 Botney Bay ..... No report.
Texas Co.'s No. 1 Perkins, 2,501 ft. S, 1,003 ft. E of NW cor. Sec. 21-6s-5e ..... No report.

SORRENTO—ASCENSION PARISH

Union Sulphur Co.'s No. 2 Lacy White Frank, 1,175 ft. N, 1,615 ft. W of SE cor. Sec. 16-10s-4e ..... Drlg. shale 5,474 ft.
Union Sulphur Co.'s No. 35 United Land ..... Tested S.W. 5,744 ft.; pulling screen.

STARKS—CALCASIEU PARISH

Gulf Ref. Co.'s No. 34 Lutcher-Moore, 1,313 ft. N, 400 ft. E of SW cor. Sec. 19-9s-12w ..... Drlg. gumbo 1,061 ft.
Union Sulphur Co.'s No. 4 Industrial Lbr. Co., 2,254 ft. from W, 2,116 ft. from S line, NE cor. Sec. 30-9s12w. Drlg. hard shale and lime 3,817 ft.

SULPHUR—CALCASIEU PARISH

Union Sulphur Co.'s No. 787 fee, 119 ft. N, 1,632 ft. W of C Sec. 29-9s-10w ..... Pulling screen 4,923 ft.
Union Sulphur Co.'s No. 788 fee, 602 ft. S, 1,209 ft. W. of C Sec. 29-9s-10w ..... Tested S.W. 5,188 ft.
Union Sulphur Co.'s No. 790 fee, 929 ft. S and 802 ft. W of center of Sec. 29-9s-10w ..... Drlg. hard lime 4,984 ft.
Union Sulphur Co.'s No. 791 fee, 529 ft. N, 907 ft. E of SW cor. Sec. 33-10s-12w ..... Drlg. shale 2,734 ft.
Union Sulphur Co.'s No. 792 fee, 2,103 ft. N, 703 ft. E of C Sec. 9-9s-10w ..... Drlg. shale and lime 1,686 ft.
Union Sulphur Co.'s No. 1 Noble, 1,745 ft. S, 150 ft. W of NE cor. Sec. 30-9s-10w ..... Spudded.
Union Sulphur Co.'s No. 1 Bernard Ulrich, 75 ft. out of SW cor. Sec. 19-9s-10w ..... Spudded.

SWEET LAKE—CAMERON PARISH

Pure Oil Co.'s No. 12 Yount Lee fee, 800 ft. S of No. 11, in line with Nos. 9 and 11, Sec. 12-13-8w..... Drlg. hard sand and lime 3,635 ft.

WHITE CASTLE—IBERVILLE PARISH

Shell Pet. Corp.'s No. 8 Wilbert, 717 ft. N 60 deg. 30 min. E from SE of Lot 2 of Fractional Sec. 9, in Sec. 1-11s-12e ..... Drlg. sandy shale 4,173 ft.

VINTON—CALCASIEU PARISH

Gulf Ref. Co.'s No. 9 Gardner, 672 ft. E, 150 ft. N, of SW cor. SE NE Sec. 33-10s-12w ..... R.U. to pump 3,211 ft.
Gulf Ref. Co.'s No. 72 Gardner-Noble-Gray, 643 ft. E, 50 ft. S of NW cor. NE SE Sec. 33-10s-12w..... Rig.
Marrs McLean's No. 16 Gray, 426 ft. N, 658 ft. E of SW cor. Sec. 33-10s-12w ..... Set screen 1,872 ft.; to pump.
Tri-Oil Co.'s No. 1 Matilda Gray, 38 ft. W, 35 ft. N, of SE cor. NE SW NE Sec. 33-9s-12w ..... Spudded.
Wilson Broach Co.'s No. 13 Wilson strip, 50 ft. N and 907 ft. E of SW cor. of Sec. 33-10s-12w ..... Tested S.W. 2,820 ft.
Union Sulphur Co.'s No. 1 Vincent ..... Drlg. heaving shale 5,852 ft.
Wilson Broach's No. 14 Wilson Strip, 50 ft. N, 643 ft. E of SW cor. SE NE Sec. 33-10s-12w..... Drlg. gumbo 3,202 ft.
Vinton Pet. Co.'s No. 3 Gordon, Sec. 34-10s-12w, 209 ft. from S line, 50 ft. from W line of 2-ac. tract... Spudded.
Vinton Pet. Co.'s No. 22 Vincent, 685 ft. N, 620 ft. E, of SW cor. Sec. 34-10s-12w, in Lot 116 ..... T.D. 2,774 ft.; sidetracked to 1,980 ft.; comp. pumping. 50 bbls. daily.

## MISCELLANEOUS WILDCATS

### TEXAS

AUSTIN COUNTY

Gem Oil Co. et al's No. 1 Klump, Steven F. Austin Sur., No. 4 League, 345 ft. from N cor. of S. D. Bostwick Sur., Abst. 18, in fork of Mill Creek ..... S.D. 3,428 ft.
R. R. Mitchell's No. 1 H. Schlerda, J. F. Fitzgibbons Sur., 300 ft. out NE cor. 96-ac. tract ..... Location.

BRAZORIA COUNTY

Danciger O. & R. Co.'s No. 1 L. Williams, 700 ft. NE line, 726 ft. SE line of 180-ac. tract, W. C. Carson Sur. ..... T.D. 6,770 ft.; cmtd. 7⅝-in. csg. 6,734 ft.

Harrison & Abercrombie's No. 1 M. D. Howe, 992 ft. W line, 330 ft. N line, Blk. 18, Thomas Spraggins Sur. ..... Drlg. 210 ft.

Shell Pet. Corp.'s No. 2 Haury (Danbury), H.T.&B. R.R. Sur., 720 ft. SE of No. 1 Blakely-Winston ..... Drlg. hard lime 4,660 ft.

West Lein Oil Co.'s No. 1 Settegast, W. C. D. Hall Sur., 4,700 ft. from SW line, 1,041 ft. from NW line of survey ..... Spudded.

BRAZOS COUNTY

H. Elliott et al's No. 1 W. F. Odom, near center of 379-ac. tract in SW cor. of Isack Curil Sur. ..... Cmtd. surface csg.

Liner et al's No. 1 Peters, 300 ft. SE line, 300 ft. SW line of E. V. Peter fee, G. Powell Sur. ..... Derrick.

F. H. Scott's No. 1 Klintworth, L. Curd Sur., 300 ft. from N line, 400 ft. from E line ..... T.D. 1,457 ft.; gas sand 1,393 1,420 ft.; standing.

COLORADO COUNTY

Humble O. & R. Co.'s No. 1-A O. M. Powell, I.&G.N. Sur. No. 44, 150 ft. E of W line, 600 ft. N of S line of lease ..... Drlg. shale 1,032 ft.

FORT BEND COUNTY

O'Connor Dome Oil Co.'s (was A. N. Phillips et al's) No. 1 Grigar, 2,150 varas E line, 1,550 varas N line, J. S. O'Connor Sur. ..... Drlg. shale 3,905 ft.

J. P. White's No. 1 Wing, B. Osborne Sur., 2,000 ft. from N, 4,000 ft. from E line of tract ..... Standing 750 ft.

GRIMES COUNTY

Clark & Dodd's No. 1 Murry, 150 ft. W line, 300 ft. S line, Anderson Sur. ..... Drlg. gumbo 1,309 ft.

Cambrian Oil Co.'s No. 1 W. V. Sangster, John Moore Sur., 300 ft. out of most westerly NW cor. of 215-ac. tract ..... Derrick.

Foster et al's No. 1 Quinn, 7,100 ft. from W line, 3,900 ft. from N line of S. F. Austin Sur. ..... T.D. 3,825 ft.; P.B. 3,200 ft.

Humble O. & R. Co.'s No. 1 Henderson, 750 ft. S, 700 ft. W at R/A of NE cor. of lease, G. W. Seaton Sur. ..... Shale 6,131 ft.; D.P. stuck; abd.

H. C. Ratcliff's No. 1 Fulgham, A. Tuttle Sur., 600 ft. N line, 540 ft. W line of lease ..... Derrick.

O. C. Rush's No. 1 J. C. League, V. Sanders Sur., 165 ft. from N line, 455 ft. from W line ..... Coring sand and shale 2,760 ft.

HARRIS COUNTY

Golding & Murchinson's No. 1 Milroy, W. C.R.R. Sur., Blk. 4, Sec. 9, 320 ft. from N line, 320 ft. from E line ..... Cmtd. 10-in. csg. 1,300 ft.

J. A. Hodges' No. 1 Scott, 200 ft. S, 900 ft. W of intersection of Crosby Huffman, F. Rankin Sur. ..... S.D. 4,800 ft.

G. L. McCarthy et al's No. 1 Weston, Wm. Jones Sur., 236 ft. E. 161 ft. S of NW cor. Blk. 9, W. A. Payne Subd. ..... Rig.

HOUSTON COUNTY

Thompson et al's No. 1 E. W. Harrison, 330 ft. out E cor. 130-ac. tract, J. Masters, Sr., Sur. ..... No report.

Murmac Oil Co.'s No. 1 G. L. Murray & Son, John Durst Sur. ..... No report.

JEFFERSON COUNTY

Lucky Strike Oil Co.'s No. 1 Walker, D. Easley Sur., 2,100 ft. N, 1,400 ft. E of NW cor. of Lot No. 13 Drlg. sand and shale 1,610 ft.

Sun Oil Co.'s No. 1 H. Long, 1,500 ft. N line, 990 ft. E line of lease ..... Drlg. shale 5,315 ft.

LIBERTY COUNTY

Brown & Wheeler's No. 1 Foster Lbr. Co., Ann Holhousen Sur., 612 varas S of N line and 4,269 varas W of E line ..... Dry and abd. 6,575 ft.

Brown & Wheeler's No. 1 Goldberg, Lot 14, J. Eldridge Sur. ..... Drlg. sand and shale 4,521 ft.

Gulf Prod. Co.'s No. 2 Kirby, John Pleasants Sur., 1,866 ft. S of No. 1 ..... Drlg. shale 5,650 ft.

Gulf Prod. Co.'s No. 1 Grogan, Clayton Harper Sur., 1,500 ft. from E line and 466 ft. from S line ..... T.D. 1,031 ft.; cmtd. 10-in. csg. 1,020 ft.

Miramar Oil Corp.'s No. 1 Crowe & Jacobs, H.&T.C Sur. 21, 950 ft. W of E line, 110 ft. N of S line of 300-ac. tract ..... Drlg. shale 2,400 ft.

MATAGORDA COUNTY

H. E. Clark et al's No. 1 Turner, M. Cummings Sur., 4,900 ft. NE line and 3,800 ft. SE line ..... Fishing D.P. 4,373 ft.

Continental Oil Co.'s No. 1 Boker, 400 ft. out of SW cor. Lot 17, Robbins & Middle Subd., J. W. Criswell Sur. ..... T.D. 6,564 ft.; swbng.

Skelly Oil Co.'s No. 1 Cobb, M. Cummins Sur., 434 ft. from E, 1,506 ft. S of F. G. Cobb's 167-ac. tract ... Drlg. shale 6,650 ft.

United North & South Dev. Co.'s No. 1 Unit 6 (No. 2 Stoddard), 25 ft. each way out of NW cor. of Lot 19, Buckeye townsite ..... Drlg. shale 8,750 ft.

MONTGOMERY COUNTY

Baker et al's No. 1 Benker, D. James Sur. ..... T.D. 4,921 ft.; P.B. to 4,909 ft.; tested S.W.; S.D.

Steen Drlg. Co.'s No. 1 Long Bell Lbr. Co., 440 ft. S and E from NW cor. of Wilson Barker Sur. ..... Cmtd. 13⅜-in. csg. 1,419 ft.; drlg. plug.

Sutton & Hawkins' No. 2 Foster est., 90 ft. E of No. 1, A. M. Del Garza Sur. ..... Drlg. sticky shale 4,778 ft.

NACOGDOCHES COUNTY

James W. Rich's No. 1 Unknown, J. L. Ewing Sur., 2,777 ft. from W line, 5,208 ft. from S line of survey.. No report.

ORANGE COUNTY

Texas Louisiana Oil Co.'s No. 1 Starks, 2,450 ft. N of NW cor. M. Delano Sur. 68, 10,500 ft. E at R/A ... T.D. 1,197 ft.; standing.

REFUGIO COUNTY

Humble O. & R. Co.'s No. 11 O'Connor, Powers & Hewitson Sur., 301 ft. S, 833 ft. E of No. 10 ..... Pulling screen to deepen 3,174 ft.

Holland Oil Co.'s No. 1 Peck, 356 ft. N and W from SW cor. Sec. 24, Bonnie View Subd. ..... S.D. 4,500 ft.

SAN JACINTO COUNTY

Piedmont Oil Co.'s No. 2 Foster, 330 ft. each way out of NE cor. Geo. Taylor Sur. ..... Pits dug.

Weaver & Crimm and Shell Pet. Corp.'s No. 1 Delta Land & Lbr. Co., Earl Lusk Sur. ..... Drlg. shale 5,002 ft.

TRINITY COUNTY

T. M. Smith et al's No. 1 C. Moody, E. Roberts Sur., 552 ft. W of E line, 1,302 ft. N of S line, of 40-ac. tract ..... S.D. 2,955 ft.

TYLER COUNTY

Turnbull & Irwin's No. 1 Kirby Lbr. Co., J. J. Pemberton Sur., 1,338 ft. E from SW cor. of Ledrick Lbr. Co.'s 381-ac. tract, thence S 250 ft. at R/A .. Dry and abd. 4,818 ft.

VICTORIA COUNTY

J. F. Camp's No. 2 Maurer, 3,300 ft. SW of No. 1 ..... To abd. 4,500 ft.

Houston Oil Co.'s No. 1 Victor Urban, R. Manchola Sur., 230 ft. from NW and SW lines of 161.37-ac. tract ..... Spudded.

Markle et al's No. 1 Dunlap, Manuel Zepeda Sur., 9,550 ft. along NW line of survey from most northerly NE cor. and 1,475 ft. SE at R/A ..... Spudded.

Texas Co.'s No. 6-A McFaddin, A. J. Gray Sur., 5,600 ft. from NE line, 250 ft. from SE line ..... T.D. 3,049 ft.; S.D.; waiting on drill pipe.

Texas Co.'s No. 7-A McFaddin, 250 ft. due N of No. 7, A. J. Gray Sur. ..... T.D. 1,597 ft.; standing with 125 lbs. pressure.

Texas Co.'s No. 8 McFaddin, A. J. Gray Sur., 6,600 ft. N of S line, 1,383 ft. from E line of NE cor. ..... Drill stem stuck 3,609 ft.

WHARTON COUNTY

Monarch Oil Co.'s No. 1 Schateck, 150 ft. each way out of SW cor. G. W. Reynolds Sur. ..... Standing 1,475 ft.

Nabers et al's No. 1 Lurker, 210 ft. out of SE cor. of N½ SW Sec. 58, E.T.R.R. Sur. ..... T.D. 5,026 ft.

Pure Oil Co.'s No. 2 Stewart, Morris & Cummings Sur., Sec. 25, 990 ft. out of SW cor. of 160 acres.... Rigging up.

Pure Oil Co.'s No. 1 A. J. Wilder, T. W. Hurd Sur., 509, 3,575 ft. SE, 1,690 ft. NE from W cor. Sec. 28.. T.D. 7,614 ft.; D.S. stuck 6,800 ft.

Pure Oil Co.'s No. 1 W. H. Lancaster, Morris & Cummings Sur., Sec. 23, 1,650 ft. NW, 1,600 ft. SW of E cor. of section ..... Fishing drill stem 7,142 ft.

Pure Oil Co.'s No. 1 Wallace Houston, 858 ft. SE of NW line, 1,690 ft. NE of SW line, Sec. 38, (T. W. Heard Sur.) ..... Deepened from 6,451 ft. to 6,457 ft.; set 10 ft. of 3½-in. screen through old screen; swabbing.

Pure Oil Co.'s No. 1 Isaac Weaver, J. M. Brownson Sur., Sec. 22, 1,650 ft. out of N cor. of section ..... T.D. 6,181 ft.; washed to bottom; ready to resume drlg.

## SOUTH LOUISIANA

ACADIA PARISH

Mills Bennett Prod. Co.'s No. 1 Riverside, 1,400 ft. S, 467 ft. E of NW cor. Sec. 61-9s-2w ..... Drlg. sandy shale and sand 7,319 ft.

Superior Oil Co.'s No. 1 P. O. Hermandez, 990 ft. W, 990 ft. S of NE cor. SE Sec. 34-8s-3e ..... Drlg. shale 7,279 ft.

ASCENSION PARISH

Turnbull & Irwin's No. 1 Community (Darrow) ..... Drlg. gumbo 2,010 ft.

BEAUREGARD PARISH

Humble Oil & Ref. Co.'s No. 1 Long Bell, 200 ft. E of W line and 2,640 ft. S of N line of Sec. 11-5s-7w ..... Rig.

CALCASIEU PARISH

Gulf Ref. Co.'s No. 1 Sweet Lake Oil Co., 660 ft. N, 330 ft. E of SW cor. Sec. 29-10s-5w ..... Drlg. shale 8,186 ft.

Fred Oil Co.'s No. 1 Farrar, 566 ft. N, 300 ft. W, SE cor. NW SE Sec. 26-8s-10w ..... S.D. 1,850 ft.

Union Sulphur Co.'s No. 1 Barbe, 2,631 ft. W, 2,647 ft. S of NE cor. Sec. 1-9s-8w ..... Drlg. shale 7,061 ft.

JEFFERSON DAVIS PARISH

Humble O. & R. Co.'s No. 2 Devillbiss, 1,850 ft. S, 250 ft. W of NE cor. Sec. 14-9s-4w ..... Pulling screen 8,423 ft.

Shell Pet. Corp.'s No. 1 Kratzs, 660 ft. S, 330 ft. W of NE cor. NW Sec. 12-9s-4w ..... Drlg. sand 5,306 ft.

Geo. W. Strake's No. 1 Pedigrew, 200 ft. out of SW cor. Sec. 9-9s-6w ..... Drlg. gumbo 906 ft.

LAFOURCHE PARISH

Barnsdall Oil Co.'s No. 1 Harang, Lot 6, Twp. 17s-20e.. T.D. 7,195 ft. in salt; P.B. to 6,300 ft.; drld. to 6,954 ft.; S.D.

ST. BERNARD PARISH

Southern Sulphur Co.'s No. 1 Lake Lery, 400 ft. W, 500 ft. N, SW cor. Sec. 28-13s-15e ..... Drlg. shale 1,500 ft.

ST. LANDRY PARISH

H. H. Hotchins Lbr. Co.'s No. 1 Whiteman Lbr. Co., 250 ft. out of SW cor. NE Sec. 15-5s-6e ..... No report.

ST. MARTIN PARISH

Standard Oil Co. of Kansas' No. 1 E. B. Hopkins, Sec. 83-10s-6e ..... Shale 7,503 ft.; P.B. to 6,010 ft.

TERREBONNE PARISH

Texas Co.'s No. 10 State-Caillou Island ..... Drlg. sand 5,105 ft.

Texas Co.'s No. 7 State Bay-St. Elaine, 2,900 ft. N, 2,300 ft. E of SW cor. Sec. 8-22s-18e ..... Drlg. sandy shale 2,905 ft.

Texas Co.'s No. 10 State-Lake Pelto, 420 ft. N, 1,246 ft. E, SW cor. Sec. 4-23s-18e ..... Drlg. 5,010 ft.

VERMILLION PARISH

Hammill & Smith's No. 1 Faulk, 600 ft. S, 400 ft. E of NW cor. Sec. 5-12s-3e ..... Drlg. shale 7,810 ft.

VERNON PARISH

Vernon Oil Co.'s No. 1 Delta Land & Lbr. Co. ..... Shale 2,600 ft.; abd.

Robt. K. Williams, Jr.'s No. 1 Llano Del Rio, 1,185 ft. S, 1,000 ft. W of NE cor. Sec. 7-1n-9w ..... Rig

## Wildcat Operations in Southwest Texas

(Continued from Page 62)

Humble O. & R. Co.'s No. 1 Woodward, 3,200 ft. from NE line, 1,200 ft. from SE line of 830-ac. tract in E. Poor Sur. ..... Derrick.

GILLESPIE COUNTY

A. F. Barnhill's No. 3 F. A. Phullman, 1,300 ft. from N line, 152 ft. from E line of lease in L. Bollinger Sur. ..... T.D. 2,244 ft.; drlg.

Powers et al's No. 2 Lindig, 12,700 ft. from S line, 1,333 ft. from W line of Maria Josephine Guerrera Sur. ..... Location.

HAYS COUNTY

J. C. Crowder's No. 1 Burnett, 2,370 ft. from E line, 1,400 ft. from N line of tract in J. Ingram Sur. .... T.D. 430 ft.; set csg.

HIDALGO COUNTY

Chancellor & Hall's No. 1 Garcia, 150 ft. from W line of Porcion No. 42, and 150 ft. N of old Military Highway ..... T.D. 3,187 ft.; will deepen to 4,100 ft. to hold leases.

Daskom Bros.' No. 1 fee, center of Porcion No. 45, and ½ mile S of Highway No. 4 ..... T.D. 4,830 ft.; abd.

McGinley's No. 1 Francisco B. Guerra, 300 ft. from N and E lines of 40-ac. tract in Share 12, Porcion 41.. T.D. 2,950 ft.; drlg.

Shankle's No. 1 Garza, ¾ mile S from McGinley ..... Derrick.

JIM HOGG COUNTY

Clark & Cowden Drlg. Co.'s No. 3 E. Vela, 985 ft. from E line, 2,762 ft. from S line, Sec. 588 in El Peyote grant ..... T.D. 1,930 ft.; drlg.

French Oil Co.'s No. 1 Gutierrez, 330 ft. from N line, 330 ft. from W line, Blk. 1, in Sur. No. 142, E from Alworth Pool ..... Spudded in and set surface csg.

A. W. Majors' No. 1 M. Guerra & Son, 2,444 ft. from W line, 3,698 ft. from N line of Sur. No. 369, in SW part of county ..... Location.

JIM WELLS COUNTY

Plymouth Oil Co.'s No. 1 Cuero Cattle Co., 320 ft. from S and W lines of H.T.&B. Sur. No. 7, 2¼ miles W from Alfred ..... Rigging up.

Rodney DeLange and W. C. McBride, Inc.'s No. 1 Driscoll, 8,000 ft. from most westerly W line, 330 ft. from most northerly S line of Los Jaboncillos grant. Moving in rig.

C. H. Robertson's No. 1 C. Mull, 330 ft. N of N end of division line between Lots 4-A and 5-A of Seefelds farm lots, or 1,300 ft. from W line, 300 ft. from N line of Pointevant Sur. No. 205 ..... Heatly magnetometer location.

KARNES COUNTY

Campbell et al's No. 1 Ira Coats, 330 ft. from S and E lines of 240-ac. tract in Carlos Martinez Sur. .... T.D. 2,342 ft.; drlg.

C. J. Webster's No. 1 J. B. Cannon, 1,140 ft. from N line, 350 ft. from E line of 80-ac. tract in Lambrano Sur. ..... T.D. 1,790 ft.; standing; may deepen to Yegua.

KENDALL COUNTY

A. P. Pierce's No. 1 Werner, in SW cor. of 40-ac. tract 150 ft. from S and W lines, in J. F. Torrey Sur. .... T.D. 992 ft.; S.D.; will treat with acid; showed oil in lime 955-64 ft.

W. E. Waldrip's No. 1 Charles Meckel, 300 ft. from E line, 3,300 ft. from S line of Thos. J. Sweeney Sur. No. 10 ..... T.D. 415 ft.; waiting for csg.

KERR COUNTY

G. F. Schreiner's No. 3 Love, 1,420 ft. from W line, 1,260 ft. from S line of Sur. No. 1,594 ..... Location.

Van Duyn & Moore's No. 1 Nowlin, 2,000 ft. from E line, 2,200 ft. from N line of Jas. R. Bettner Sur. No. 99 ..... T.D. 1,040 ft.; standing.

KLEBERG COUNTY

Harry Clark's No. 1 V. J. Kivlin, 360 ft. from E line, 400 ft. from S line of Sec. 39, Blk. 8, Kleberg Town & Improvement Co. Sur. .. ..... T.D. 2,050 ft.; S.D.

LEE COUNTY

H. A. Sherlack's No. 1 Otto, 736 ft. from NW line, 1,310 ft. from NE line of 57.5-ac. tract in Thomas Morrow Sur. ..... Rigging up.

LIVE OAK COUNTY

H. Coquat et al's No. 1 Burgess, 990 ft. from W line of Sec. 77, 33 ft. from N line of Simmons Subd. in farm tract No. 3,487 ..... T.D. 2,385 ft.; drlg.

J. H. Durbin's No. 2 Marbach, midway between NW line and SE line of 423.3-ac. tract and 850 ft. SW line of S. Hays Sur. ..... T.D. 280 ft.; drlg.

W. P. Howard's No. 2 Nichols, 150 ft. from W line, 2,640 ft. from N line of Subd. "B," or 4,450 ft. from W line, 2,640 ft. from N line of tract in Louis Ayres Sur. ..... T.D. 1,215 ft.; in sand; set csg.

Loma Oil Co.'s No. 1 Reiffert, 300 ft. from NW line, 1,100 ft. from SW line of 130-ac. tract, in Stephen Hays Sur. ..... Spudded in and standing.

Marine Oil Corp.'s No. 1 J. B. Dunning, 4,500 ft. from E line, 150 ft. from N line of 462-ac. tract in Maria Bridget Kiolin Sur. ..... Rigging up.

Stuart Mossman's No. 1 W. J. Armstrong, 2,970 ft. from S line, 330 ft. from W line of 269-ac. tract in Henry Sur. ..... T.D. 1,300 ft.; drlg.

MAVERICK COUNTY

C. L. Mahoney's No. 1 Wyche, 150 ft. from S line, 300 ft. from W line of 453-ac. tract in Sec. 20.. T.D. 340 ft.; S.D.

McMULLEN COUNTY

Armoil Prod. Co.'s No. 1 Kate Martin, 1,470 ft. from SE line, 1,470 ft. from SW line of H.T.&B. Sur. No. 9 ..... T.D. 2,023 ft.; standing.

Paul C. Teas' No. 4 Hagist, 330 ft. from S and W lines of 80-ac. tract, and 330 ft. from W line and about 2,250 ft from S line of Sur. No. 187 ..... T.D. 2,004 ft.; abd.

Two Rivers Oil Co.'s No. 2 Two Rivers Ranch, 330 ft. from W line, 100 ft. from N line of Sec. 64, of Two Rivers Ranch Subd. ..... T.D. 712 ft.; reaming.

Snider, Whisenant & Trenchard's No. 1 Bremer, 330 ft. from S and E lines of Blk. 15 of Borcher's Subd., 2 miles SW of Calliham ..... T.D. 846 ft.; S.D. account of rain.

MEDINA COUNTY

O. R. Framme's No. 1 E. Boelke, 987 ft. from N line, 600 ft. from E line of 102-ac. tract in S. Huth Sur. No. 10 ..... T.D. 1,085 ft.; standing.

MILAM COUNTY

O. H. Birdwell's No. 1 J. R. Bartek, 150 ft. from N line, 150 ft. from W line of 88-ac. tract in J. A. de Pena Sur. ..... T.D. 1,252 ft.; drlg.

Fred Pederson's No. 1 T. E. Fulton, 1,000 ft. from NW line, 320 ft. from NE line of 148-ac. tract in Juan Jose Acosta Sur. ..... T.D. 1,400 ft.; standing.

NUECES COUNTY

Sullivan and Texon Royalty Co.'s No. 1 Simmons & Perry, 330 ft. from S and W lines of NE of square 640-ac. section out of SW cor. of Simmons & Perry tract, 2 miles east of Agua Dulce Field ..... Rigged up.

SAN PATRICIO COUNTY

Plymouth Oil Co.'s No. 1 Welder, 4,700 ft. N of Chiltipin Creek, 900 ft. from W line of J. M. and F. Portilla Sur., 1½ miles N from Sinton ..... Rigged up.

STARR COUNTY

Accumulative Royalty Co.'s No. 1, Martinez, 800 ft. from S line, 500 ft. from W line of C.C.S.D.&R. G.N.G. Sur. No. 217 ..... T.D. 2,865 ft.; changing rigs; to go to 4,000 ft.

B. & B. Oil Co.'s No. 2 Kelsey Bass, 330 ft. from W and S lines of Blk. 13 of Subd. of Porcions 86 and 87, jurisdiction Camargo ..... Rigging up.

Danvers & Harrison's No. 1 C. Ramos, 2,310 ft. from SE line, 330 ft. from SW line of Sur. No. 150 .. .. T.D. 1,720 ft.; drlg.

Goodwin & Yantis' No. 5 Kelsey Bass, 150 ft. from S and W lines of Blk. 1, Sur. 3, of Coastal O. & G. Co.'s Subd. of Porcion 86, jurisdiction Camargo.... Rigged up.

Great Plains Oil Co.'s No. 1 Sanchez, 660 ft. from W line, 330 ft. from S line of SE NW of Sur. No. 344.. T.D. 3,515 ft.; set 6⅝-in. at 2,570 ft.

Jeffries-Lambeth Drlg. Co.'s No. 2 Starr County Cattle Co., N of No. 1 in Share 60, Porcion 89 ..... Rigging up.

W. H. Liber's No. 1 I. Y. Garcia, 1,546 ft. from N line, 962 ft. from W line of 254-ac. tract in Porcion No. 75, jurisdiction of Camargo ..... T.D. 1,025 ft.; drlg.

Myers, Sullivan & Jenkins' No. 1 Starr County Cattle Co., 330 ft. from N line, 330 ft. from W line, Blk. 62, Porcion 89, Share 60 ..... T.D. 2,520 ft.; standing.

R. D. Perkins & Hoffman's No. 1 E. A. Peffler, 3,090 ft. from W line, 2,480 ft. from S line of Sur. 933.. T.D. 1,547 ft.; standing.

TRAVIS COUNTY

Franklin et al's No. 1-A Reimers, 1,200 ft. from SE line, 1,600 ft. from most southerly SW line of Sur. No. 35 ..... T.D. 925 ft.; standing; to be comp. by R. L. Batts.

G. M. Rowe's No. 2 Smith (200-ac. tract), 450 ft. from NE and SE lines of tract in L. Kimbro Sur. ..... T.D. 746 ft.; S.D.

WEBB COUNTY

L. E. Lockhart's No. 1 E. Eikel, 330 ft. from N line, 260 ft. from E line of Sur. No. 1,672 ..... Rigging up.

WILSON COUNTY

Bidnar & Powell's No. 1 L. C. George, 400 ft. from SE line, 475 ft. from SW line of 86.5-ac. tract in C. Dias Sur. No. 44 ..... T.D. 1,140 ft.; standing.

WILLIAMSON COUNTY

McLean et al's No. 2 R. C. Miller, 800 ft. to S line, 100 ft. to W line of tract, B. Manlove Sur. ..... T.D. 2,300 ft.; standing.

R. S. Wilson's No. 2 Sing, 300 ft. from SW line, 1,250 ft. from SE line, of T. A. Moore Sur. ..... T.D. 530 ft.; S.D.

ZAPATA COUNTY

J. P. Doyle's No. 1 I. Ramirez, 150 ft. from NW and SW lines of Blk. 15, Share 1, Porcion 18 ..... T.D. 40 ft.; spudded in; S.D.

Muckelroy's No. 1 Flores, on NE line and 75 ft. from SE line of Lot 2, Blk. 30, Muckelroy Subd. of Porcion No. 37 ..... Derrick.

Texas Co.'s No. 38 Whitehead, 3,302 ft. from SE line, 20,998 ft. from SW line in Cerrito Blanco Sur. .... T.D. 1,000 ft.; drlg.

# Southwest Texas Proven Areas

**Week Ending February 10**

CEDAR CREEK POOL—BASTROP COUNTY

Marts & Beavens' No. 6 Reyes, 150 ft. from NW and SW of Amada Reyes' 333-ac. tract in Addison Litton League ..... T.D. 1,698 ft.; drlg. plugs.

HILBIG POOL—BASTROP COUNTY

Humble O. & R. Co.'s No. 2 F. O. Beck, 45 acres, 430 ft. from NE line of survey and tract, 750 ft. from SE line of tract, or 1,000 ft. SE of No. 1 in Andrew Mays Sur. ..... T.D. 2,912 ft.; abd.

NORTH DALE POOL—BASTROP COUNTY

Marts & Beavens' No. 1 J. W. Miears, 1,065 ft. from SW line, 685 ft. from NW line of John Maximilian Sur. ..... T.D. 3,195 ft.; coring shale.

Ogden & Reed's No. 1 W. F. Talley, 200 ft. from SE and SW lines of 198-ac. tract in Joshua Gray Sur... T.D. 2,296 ft.; flowed 30 bbls. through tubing; rigged up to pump.

Watt L. Saunders' No. 1 Harris, 1,100 ft. from SW line, 2,330 ft. from NW line of John Maximilian Sur. No. 22 ..... T.D. 240 ft.; S.D.

Witherspoon Oil Co.'s No. 1 A. H. Harris, 150 ft. from SE and SW lines of Harris' 130-ac. tract in Joshua Gray Sur. ..... Rigged up.

TULETA POOL—BEE COUNTY

Garland Clymore's No. 1 Rapp & Hatch, 650 ft. E along the S line from R.R., thence 1,350 ft. N at R/A in Sec. 12 of J. M. Uranga Sur. ..... T.D. 4,041 ft.; tested mud in Pettus sand.

ECKERT POOL—BEXAR COUNTY

Alamo Nat. Gas Co.'s No. 2 Coreth, 300 ft. SE of Humble's No. 2 Coreth in A. Stafford Sur. ..... T.D. 1,055 ft.; setting 6⅝-in. csg.

J. F. Harrison's No. 4 F. Gembler, 150 ft. from NW line, 460 ft. from NE line of 88-ac. tract in J. Montez Sur. ..... T.D. 831 ft.; S.D.

S. J. Moore's No. 5 T. W. Masterson, 150 ft. from S line, 175 ft. from W line of 41-ac. tract in Miguel Gortaris Sur. ..... T.D. 736 ft.; csg. stuck at 300 ft.

S. J. Moore's No. 4 T. W. Masterson, 150 ft. from S and W lines of tract in M. Cartari Sur. ..... T.D. 330 ft.; standing.

VON ORMY POOL—BEXAR COUNTY

Von Ormy Oil Co.'s No. 2 E. B. Carruth, 515 ft. from W line, 1,970 ft. from S line of 160-ac. tract out of 667-ac. tract in F. Rolen Sur. ..... Rigged up and standing; to be drilled by Cosby & Flowers.

WEBSTER POOL—CALDWELL COUNTY

C. J. Webster O. & G. Co.'s No. 2 McCroy, 750 ft. from S line, 150 ft. W of NE cor. of tract in John A. Neill Sur. ..... T.D. 2,276 ft.; abd.

EAGLE HILL POOL—DUVAL COUNTY

Al Buchanan's No. 4 Duval Ranch, 660 ft. W of No. 1, in Sur. No. 206 ..... Rigging up.

Al Buchanan's No. 3 Duval County Ranch Co., 330 ft. from S line, 2,310 ft. from E line of N½ of Sur. No. 206 ..... T.D. 1,489 ft.; est. 150 bbls.; making considerable gas.

Al Buchanan's No. 4 Duval County Ranch Co., 990 ft. from S line, 2,310 ft. from E line of N½ Sur. 206.. T.D. 150 ft.; drlg.

R. D. Kelley's (S.R.C.) No. 5 Foster, 330 ft. from S and W lines of 50-ac. tract in Sur. No. 206 .... T.D. 1,860 ft.; drlg.

Shasta Oil Co.'s No. 3 Foster, 50 ft. S of No. 1, or 380 ft. from N line, 330 ft. from E line of S½ of Sur. No. 206 ..... Rigging up.

S. R. & C. Oil Co.'s No. 4 J. R. Foster, 330 ft. from W line, 1,882 ft. from N line of 50-ac. tract in Pointevant Sur. No. 206 ..... T.D. 1,471 ft.; comp. 5 bbls. hrly.

Texas Co.'s No. 7-A Duval County Ranch, 2,970 ft. from E line, 990 ft. from N line of Sur. No. 206 .. T.D. 2,362 ft.; S.W.; P.B. to 1,500 ft.

EAST COLE POOL—DUVAL COUNTY

Motes-Campbell's No. 1 Bruni, 150 ft. from NE and SE lines of Sec. 493, Myrtle E. Hale Subd., Mariano Arispe grant ..... T.D. 1,475 ft.; drlg.

IGNACIO POOL—DUVAL COUNTY

DeSoto O. & G. Co.'s No. 3 Wood-Welder, 2,100 ft. from W line, 1,900 ft. from N line of Sur. No. 211..... Rigging up.

NORTH GOVERNMENT WELLS POOL—DUVAL COUNTY

Humble O. & R. Co.'s No. 30 C. W. Hahl, 2,310 ft. from S line, 1,650 ft. from W line of E½ Sur. No. 360 ..... T.D. 2,329 ft.; comp. 20 bbls. hrly.

Humble O. & R. Co.'s No. 31 C. W. Hahl, 1,650 ft. from N line, 330 ft. from W line of Sur. No. 74... T.D. 2,343 ft.; flowing 95% S.W.

K. O. T. Oil Co.'s No. 2 Lundell, 1,470 ft. from S line, 1,170 ft. from W line of Sur. No. 48 ..... Derrick.

Magnolia Pet. Co.'s No. 18 Duval County Ranch Co., 2,970 ft. from E line, 1,650 ft. from S line of Sur. No. 208 ..... Rigging up.

Magnolia Pet. Co.'s No. 17 Duval County Ranch Co., 990 ft. from S and W lines of Sur. No. 208 ..... T.D. 2,331 ft.; comp. est. 100 bbls. daily; P.B. to 2,327 ft.

Reynosa Oil Corp.'s No. 3-D Duval County Ranch Co., 330 ft. from S and E lines of S½ SW of Sur. No. 362 ..... Rigged up.

Reynosa Oil Corp.'s No. 7-A Duval County Ranch, 330 ft. from N line, 990 ft. from E line of N½ SW of Sur. No. 362 ..... T.D. 2,264 ft.; running tubing.

Smith & Story's No. 6-A E. C. Lundell, 150 ft. from S line, 150 ft. from W line of SE SW Sur. No. 48.... T.D. 2,253 ft.; comp. 100 bbls. oil daily on gas jet.

Sun Oil Co.'s No. 23 Welderkehr, 330 ft. from N line, 990 ft. from W line of Sur. No. 359 ..... T.D. 2,316 ft.; comp. 23 bbls. hrly.

Sun Oil Co.'s No. 27 Hahl, 330 ft. N line, 660 ft. W line of Sur. No. 359 ..... T.D. 2,295 ft.; set csg.

Sun Oil Co.'s No. 28 Hahl, 1,650 ft. from E line, 3,630 ft. from N line of Sur. No. 359 ..... T.D. 2,249 ft.; comp. 2½ bbls. hrly. on ⅜-in. choke.

Sun Oil Co.'s No. 25 Welderkehr, 330 ft. from N line, 1,650 ft. from E line of Sur. No. 359 ..... T.D. 2,305 ft.; comp. 25 bbls. hrly. ⅜-in. choke.

Sun Oil Co.'s No. 26 Welderkehr, 2,030 ft. W of No. 25 in Sur. No. 359 ..... T.D. 2,305 ft.; comp. 25 bbls. hrly. on ⅜-in. choke.

Russ Pet. Co.'s No. 4-A C. W. Hahl, 320 ft. from S and W lines of NW SW Sur. No. 46 ..... T.D. 375 ft.; drlg.

Sun Oil Co.'s No. 29 Welderkehr, 1,650 ft. from W line, 330 ft. from N line of Sur. No. 359 ..... Rigged up.

Sun Oil Co.'s No. 30 Welderkehr, 1,650 ft. from E line, 990 ft. from N line of Sur. No. 359 ..... T.D. 1,610 ft.; drlg.

Sun Oil Co.'s No. 31 Welderkehr, 2,310 ft. from W line, 330 ft. from N line of Sur. No. 359 ..... T.D. 40 ft.; set surface csg.

Sun Oil Co.'s No. 24 Welderkehr, 330 ft. from S line, 1,650 ft. from E line of Sur. No. 359 ..... T.D. 375 ft.; drlg.

Texas Co.'s No. 5 Duval County Ranch Co., 330 ft. from S line, 990 ft. from E line of SE Sur. No. 362.. Rigged up.

Texas Co.'s No. 10 M. B. Johnson, 1,650 ft. from S line, 150 ft. from W line of Sur. No. 42 ..... T.D. 2,288 ft.

Texas Co.'s No. 4 (fee) D.C.R., 990 ft. from W line, 330 ft. from S line of SE of Sur. No. 362 ..... Comp. 46 bbls. hrly 1-in. choke.

Texas Co.'s No. 10 H. Wendt, 330 ft. from W line, 1,650 ft. from N line of Sur. No. 42 ..... Location; moving in machinery.

Viola Oil Co.'s No. 2 Webb, 990 ft. from N line, 330 ft. from E line of Sur. No. 41 ..... T.D. 2,262 ft.; comp.; dry gas well; 500 lbs.

ORIGINAL GOVERNMENT WELLS POOL—DUVAL COUNTY

Trapshooter Reilly's No. 1-B C. W. Hahl, 200 ft. from W line, 330 ft. from S line of Blk. 26, Sur. 250... Location.

SOUTH GOVERNMENT WELLS POOL—DUVAL COUNTY

Cox & Hamon's No. 1 State, 330 ft. from S and W lines of NE SW of Sur. No. 60 ..... T.D. 1,522 ft.; drlg.

Humble O. & R. Co.'s No. 17 Paul White, 1,980 ft. from E line, 990 ft. from S line of Sur. No. 249.... T.D. 1,725 ft.; drlg.

Magnolia Pet. Co.'s No. 6 Lundell, 1,650 ft. from E line, 990 ft. from S line of SE Sur. No. 60 ..... T.D. 2,230 ft.; set csg.

SARNOSA POOL—DUVAL COUNTY

Magnolia Pet. Co.'s No. 5 Ruiz, 330 ft. from NE and SE lines of S¼ of Sur. No. 574 ..... Spudded in.

NEW BERLIN POOL—GUADALUPE COUNTY

J. A. Harper's No. 2 Rosenbrook, 660 ft. SW of No. 1..T.D. 701 ft.; standing.

ALWORTH POOL—JIM HOGG COUNTY

French Oil Corp.'s No. 1 M. Garza (W side of pool), Sur. No. 281 ..... Set surface csg.

KINGSVILLE POOL—KLEBERG COUNTY

Ryals & Bartlett's No. 1 Flato, 150 ft. from N line, 30 ft. from W line of NE SE Sec. 40, of Kleberg Town & Improvement Co. Sur. ..... Derrick.

JACOB POOL—McMULLEN COUNTY

C. R. Kennon's No. 1 Lark, 310 ft. from W line, 150 ft. from N line of 20-ac. tract, Blk. 27, Scrugham Sur. ..... T.D. 1,052 ft.; drlg. plugs.

Loma Oil Co.'s No. 18-A Jacobs, 660 ft. S of No. 11, in W. H. Jacobs Sur. No. 8 ..... Moving in rig.

CUEVITAS POOL—STARR COUNTY

Sun Oil Co.'s No. 4-C Guerra, 1,320 ft. from NW line of Porcion, 660 ft. SW of E cor. of LaSacatosa grant ..... Rigging up.

Sun Oil Co.'s No. 1-D Guerra, 6,353 ft. from NE line, 3,300 ft. from SE line of La Sacatosa grant ..... Rigging up.

KING POOL—NUECES COUNTY

John F. Camp's No. 2 King, 990 ft. from N line, 330 ft. from E line of NE Sec. 24, of King Farm lots.. Moving in rig.

LOS OLMOS POOL—STARR COUNTY

Los Olmos O. & G. Co.'s No. 57 Kelsey Bass, 150 ft. from N line, 568 ft. from W line of SE SW Sec. 6, Porcions 75, 76 and 77 ..... T.D. 640 ft.; stanc'ing; depth corrected.

CAROLINE-TEXAS POOL—WEBB COUNTY

Carolina-Texas O. & G. Co.'s No. 11 S. Benavides, 150 ft. from S line, 600 ft. from W line of Blk. 12, Sur. No. 683 ..... T.D. 3,343 ft.; abd.

LAUREL POOL—WEBB COUNTY

South Texas Oil Co.'s No. 18 Rosenberg, 550 ft. from S line, 250 ft. from E line of Blk. 5, Sur. No. 271.. T.D. 2,261 ft.; S.G.

MOCA POOL—WEBB COUNTY

Quintana Oil Co.'s No. 4 Duval County Ranch Co., 1,643 ft. from E line, 650 ft. from S line of Blk. 11, Share 3, Zapata School land ..... T.D. 845 ft.; running D.S. test.

EAST COLE POOL—WEBB COUNTY

Allen & Morris' No. 1 Bruni, 418 ft. from NE line, 260 ft. from SE line of Blk. 2, Sec. 5, of Adams Subd. of Arispe grant ..... T.D. 2,660 ft.; drlg.

WEST COLE POOL—WEBB COUNTY

Cole Pet. Co.'s No. 32 R. Benavides, 402 ft. from W line, 160 ft. from S line of Blk. 3, Sur. No. 412.... T.D. 2,352 ft.; set csg.

Magnolia Pet. Co.'s No. 2 S. S. Benavides, 660 ft. from N line, 150 ft. from W line of Sur. No. 696 ..... T.D. 2,338 ft.; changing to standard tools.

BYERSVILLE POOL—WILLIAMSON COUNTY

Taylor Prod. Co.'s No. 1 John Reiger, 150 ft. from NE line, 2,950 ft. from SE line of P. Cartwright Sur. ..... Ready to spud.

ESCOBAS POOL—ZAPATA COUNTY

Allen & Morris' No. 41 Gutierrez, 1,950 ft. from NE line, 3,063 ft. from SE line of Share No. 4 in Comitas grant ..... Rigged up.

Allied O. & G. Co. and Allen & Morris' No. 40 Gutierrez, 1,350 ft. from NE line, 3,063 ft. from SE line of Share 4, of Comitas grant ..... T.D. 1,290 ft.; comp. 75 bbls. dly.

Kleiner & Hill's No. 7 Gutierrez, 2,345 ft. from NW line, 200 ft. from NE line of Share 4 in Comitas grant ..... Rigged up.

Texas Co.'s No. 38 Whitehead, 3,300 ft. from SE line, 20,995 ft. from SW line of Cerrito Blanco grant.... T.D. 1,190 ft.; coring.

W. E. West and J. P. Perry's No. 1 Garcia, 1,200 ft. from NW line, 200 ft. from NE line of Share 3 of Comitas grant ..... T.D. 225 ft.; standing.

MARTINEZ POOL—ZAPATA COUNTY

W. R. Shankle and Wm. McGinley's No. 2 Manuel Trevino heirs, 330 ft. from W line, 150 ft. from S line of Blk. 15, Sur. No. 411 ..... T.D. 1,050 ft.; drlg.

MIRANDO VALLEY POOL—ZAPATA COUNTY

Blair & Blankenship's No. 1 R. Hinnant, 450 ft. from S line, 300 ft. from W line of Blk. 16, Sur. No. 116.. T.D. 1,505 ft.; ran tubing; swabbing.

VILLA POOL—ZAPATA COUNTY

Danvers & Harrison's No. 1 Garza, 330 ft. from SE and NE lines of Blk. 102, Douglas Subd., Comitas grant.. T.D. 50 ft.; set surface csg.

## Wildcat Operations in Louisiana-Arkansas

(Continued from Page 70)

John W. Moffett's No. 1 Logan Oil Co., Sec. 3-9-13... W.O.S.R. 1,985 ft.

Geo. W. Pace's No. 1 Quinn, 600 ft. E, 180 ft. S, NW cor. Sec. 10-9-13 ..... W.O.S.R. 2,012 ft.

Dr. C. R. Reed's No. 1 Allen, 495 ft. S, 600 ft. E, NW cor. Sec. 10-9-13 ..... Comp. pumping 15 bbls. 1,623 ft.

Reese and Martin's No. 1 Allen, 762 ft. S and 308 ft E NW cor. Sec. 10-9-13 ..... Testing 2,021 ft.

Reese & Martin's No. 1 E. Harris, 360 ft. S, 190 ft. E, NW cor. SE NW Sec. 10-9-13 ..... Drlg. 1,420 ft.

W. H. Rowe et al's No. 1 Craig, 330 ft. S and E, of center Sec. 22-9-13 ..... Set 10-in. 40 ft.

Sabine Royalties Co.'s No. 2 Graham, 330 ft. N and E, SW cor. NW, Sec. 20-9-13 ..... Setting liner to test 2,072 ft.

J. E. Sedberry's No. 1 Morgan, NE cor. NW NW Sec. 10-9-13 ..... Testing 1,989 ft.

Walter R. Smith's No. 1 E. K. Harris, Sec. 10-9-13.... Set 6-in. 1,763 ft.

Texas Trading Co.'s No. 1 Isgitt, 78 ft. N, 41 ft. W, SE cor. Sec. 9-9-13 ..... Testing 2,047 ft.

J. B. Williams' No. 1 Tatum, 330 ft. N and W, SE cor. NW SE Sec. 32-9-13 ..... Rigging up.

Windsor Oil Co.'s No. 2 Barr, 330 ft. N and E, SW cor. NW Sec. 15-9-13 ..... Location.

Winn & Caviness' No. 1 Paul est., 330 ft. N, 43 ft. W, SE cor. NW Sec. 9-9-13 ..... S.D.; W.O. 1,918 ft.

SABINE—ZWOLLE

H. C. Maulding's No. 1 Alford, 330 ft. S and W, NE cor. NW NW Sec. 18-7-10 ..... Derrick.

H. C. Maulding's No. 1 Van Vickhaven, 330 ft. N and W, SE cor. NE Sec. 3-7-11 ..... W.O.S.R. 2,300 ft.

### Arkansas

JEFFERSON COUNTY

J. E. Elliott's No. 1 B. V. Nevin, 440 ft. N and E, SW cor. SW NW Sec. 26-4-10 ..... Partly rigged up and S.D.

HEMPSTEAD COUNTY

A. H. Bagnelle's No. 1 Trattner & Rhinehart, Sec. 3-13-26. S.D. 947 ft.

LAFAYETTE COUNTY

Douglas Lawn's No. 1 Camp, 330 ft. S and W, NE cor. SW SE Sec. 14-15-23 ..... Set 10-in. 52 ft.

George W. Harper's No. 2 Bodcaw, 150 ft. S, 550 ft. E NW cor. SW NW Sec. 16-15-22 ..... S.D. 1,216 ft.

MILLER COUNTY

Duluth-Ark. Oil Co.'s No. 2 Beck, 330 ft. S and E, NW cor. SE SW Sec. 34-15-26 ..... Setting 4½-in. csg. 2,807 ft.

Fitzwater et al's No. 1 Norson, SW cor. SE SW Sec. 20-15-27 ..... Coring 3,010 ft.

King Oil Corp.'s No. 1 C. H. Schroder, 200 ft. N, 330 ft. E, SW cor. SW NE Sec. 24-14-28 ..... Set 12½-in. 72 ft.

Magnolia Pet. Co.'s No. 2 Olivet, 310 ft. S, 1,170 ft. E NW cor. NW NE Sec. 4-16-26 ..... Fishing for screen 2,930 ft.

C. E. Murdock's No. 1 Rose, Sec. 4-16-26..... Pumped 25 bbls. oil and S.W.; P B.

C. E. Murdock's No. 1 Smith (formerly Baker & McMurray), 150 ft. N and W, SE cor. SE SW Sec. 33-15-26 ..... W.O.S.R. 2,926 ft.

Frank W. Roe's No. 1 Dominick, 330 ft. S and E, NW cor. NW NW Sec. 21-15-26 ..... S.W. and abd. 2,952 ft.

Texarkana Oil Corp.'s No. 2 E. L. Beck, 240 ft. N. 450 ft. E, SW cor. SW SE Sec. 33-15-26 ..... W.O.S.R. 2,931 ft.

OUACHITA COUNTY

F. G. Harrell's No. 1 Poindexter, 330 ft. S and E NW cor. Sec. 35-15-18 ..... Dry and abd. 2,352 ft.

L. L. McDonald's No. 1 J. A. Robertson, 200 ft. S and E, NW cor. NE NW Sec. 25-15-16..... W.O.S.R. 2,092 ft.

UNION COUNTY

E. R. Henderson's No. 2 J. H. Ogden, 330 ft. S and E, NW cor. SW SE Sec. 32-18-14 ..... W.O.S.R. 2,208 ft.

E. R. Henderson's No. 1 Vines, 330 ft. N and W, SE cor. SW SE Sec. 29-18-14 ..... Drlg. 2,196 ft.

Mrs. R. K. Jones et al's No. 1 J. Davis, 330 ft. N and W, SE cor. NW NW Sec. 28-16-14 ..... Set 10-in. 102 ft.

Marine Oil Co.'s No. 2-E Thompson, Sec. 10-18-13..... Drlg. 2,655 ft.

Chas. Steele's No. 1 J. B. Combs, 150 ft. N, 185 ft. W, SE cor. SW NW Sec. 25-18-16 ..... Rigging up.

Tubal Pet. Co.'s No. 1 Gaddy, 340 ft. N and E, SW cor. SE NW Sec. 14-17-14 ..... Testing 2,730 ft.

### Mississippi

GREENE COUNTY

United Gas Public Service Co.'s No. 1 Davis, C NW ..... Drlg. 1,750 ft.

NEWTON COUNTY

Bod Dalton et al's No. 2 Majure, SE SE Sec. 25-6-11.... S.D. 3,300 ft.

SIMPSON COUNTY

Beavy Corp.'s No. 1 R. J. Beavy, C SW Sec. 28-2n-4e... Arranging to set 6⅝-in. 2,325 ft.

WALTHALL COUNTY

Mutual O. & G. Co.'s No. 1 Boyd, Sec. 24-2n-9e, SW cor. SW SE ..... Moving in rig.

WARREN COUNTY

Orbet Drlg. Co.'s No. 1 R. L. Parker, 300 ft. E, CWL, Sec. 14-14-1e ..... Drlg. 2,875 ft.

## Louisiana-Arkansas Proven Areas

### North Louisiana

BOSSIER PARISH

| Company, well, farm name, section and block— | Remarks: |
|---|---|
| United Gas Pub. Serv. Co.'s No. 1 Skannell Unit, Sec. 13-17-12 ..... | Comp. 16,000,000 ft. gas 4,250 ft. |

CADDO—RODESSA

| | |
|---|---|
| Louana O. & G. Co.'s No. 2-A Hammock, C NW NE Sec. 5-18-16 ..... | Drlg. 2,400 ft. |
| R. W. Norton's No. 1-B J. B. French, 660 ft. S and E, NW cor., Sec. 34-23-16 ..... | Drlg. 6,308 ft. |

CLAIBORNE PARISH

| | |
|---|---|
| United Gas Public Service Co.'s No. 2 Tony Durrett, 35 ft. S, 50 ft. W of CNL NE NW Sec. 3-19-5..... | Testing 4,494 ft. |

MOREHOUSE PARISH

| | |
|---|---|
| United Carbon Co.'s No. 1 Montgomery, 1,339 ft. S, 2,268 ft. E of C Sec. 9-21-5l ..... | Set 4½-in. 2,468 ft.; T.D. 2,500 ft. |

SABINE PARISH—ZWOLLE

| | |
|---|---|
| Baird Bros.' No. 1 Cooper, 330 ft. S and W, NE cor. SE Sec. 30-8-11 ..... | Using acid 2,283 ft. |
| Dyer et al's No. 1 McCollister, 330 ft. S and E, NW cor. SW NE Sec. 24-7-12 ..... | S.D. 1,100 ft. |
| Magnolia Pet. Co.'s No. 2 Gindratt, 330 ft. N, 320 ft. E. SW cor. SE Sec. 30-8-11 ..... | T.A. 2,485 ft. |
| Monroe Prod. Co.'s No. 1 Sabine Lbr. Co., 330 ft. S and W, NE cor. SE NW Sec. 7-7-11 ..... | Comp. flowing 400 bbls. 2,443 ft. |
| Geo. L. Pace's No. 3 F. Greer, 150 ft. S and E, NW cor. NE NW Sec. 33-8-11 ..... | Drlg. 2,000 ft. |
| J. H. Reeves' No. 1 Sabine Lbr. Co., 330 ft. N and S SE cor. NE NW Sec. 7-7-11 ..... | Using acid 2,700 ft. |
| C. T. Ruffin's No. 2 Williams, 330 ft. N and W, SE cor. NW NE Sec. 7-7-11 ..... | Using acid 2,558 ft. |
| A. H. Tarver's No. 2 Baur and Barthold, Sec. 25-8-12 .. | Bailing 2,612 ft. |
| L. J. Tillery's No. 1 Sabine Lbr. Co., 800 ft. S, 220 ft. W, NE cor. Lot 3, La. Nava grant, Sec. 5-7-11 ..... | Testing 2,475 ft. |
| John Wrather et al's No. 1 Pruitt, 110 ft. W, 330 ft. N, SE cor. SW NE Sec. 25-8-12 ..... | S.D.; W.O. 2,526 ft. |

### Mississippi

RANKIN COUNTY

| | |
|---|---|
| Ferguson, Fuller & Metz' No. 1 Ammons, 350 ft. E and S, NW cor. NW NW Sec. 35-3n-3e ..... | Partly rigged up and S.D. |
| Cleve Love et al's No. 1 Thomas, SW Sec. 10-4-1e ..... | S.D. 5,465 ft. |

### East Texas (Border Counties)

PANOLA COUNTY

| | |
|---|---|
| Dale and Sneed's No. 1 Wooten estate, P. Martin Sur. .. | Rigging up. |
| Holden and Nichols' No. 1 S. W. Ray, W. B. Culver Sur. ..... | W.O. csg. 2,030 ft. |
| Keisker and Uanier's No. 1 Frost Lbr. Ind., Mary Potts Sur. ..... | Testing 2,409 ft. |
| C. R. Obermeyer et al's No. 1 Wooten estate, P. Martin Sur. ..... | W.O. csg. 2,110 ft. |
| Rockunda and Acres' No. 1 Burnett Lbr. Co., J. H. Mallory Sur. ..... | Rigging up. |
| Southern Prod. Co.'s No. 3 Wooten estate, P. Martin Sur. ..... | S.D. 2,117 ft. |

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**JAMES E. MILLER CO., 207½ E. Third St., Tulsa, Okla., will co-operate with responsible parties seeking aid in financing projects of higher order.**

**FINANCIAL AGENT WANTED**

A long established and responsible oil company located in the Mid-Continent area, desires the services of a financial agent in connection with the financing of drilling program of the highest merits. We will be pleased to receive correspondence from those seeking a high class connection and qualified in handling this class of business. Address Box F-940, The Oil and Gas Journal, Tulsa, Okla.

CAPITAL available for sound oil or mining projects; also for other new or going enterprises with future possibilities. Schelzel, 1150 Griswold St., Detroit, Mich.

### Oil Industry Printing

**OIL FIELD LEGAL BLANKS**

**Leases, assignments, releases, township plat books, well records, etc. Request on your letterhead gets free catalog. Olds Press, 215 East Third St., Tulsa, Okla.**

### Patent Attorneys

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**United States and Canada**
**Before disclosing your invention to anyone, send for blank form:**
**"Evidence of Conception,"**
**Instructions "How to Establish Your Rights" and complete information FREE!**
**LANCASTER, ALLWINE & ROMMEL**
**418 Bowen Building,**
**Washington, D. C.**

### Situations Wanted

ACCOUNTANT-Engineer — Thirteen years responsible experience with large oil organization on income tax work. P. O. Box 1264, Tulsa, Okla.

Engineer: Young, 10 yrs. design, development, operation, mod. refining equipment. Now employed. Desires connection refg. or equip. organization. Box F-972, The Oil and Gas Journal, Tulsa, Okla.

EXPERIENCED Foreign Traffic and Export Sales Manager, seeks responsible position with oil company. Capable of taking full charge. Address Box F-971, The Oil and Gas Journal, Tulsa, Okla.

POSITION WANTED—By first class production engineer. Experienced cable tool driller, Pumper, Lease foreman, tool pusher and general all around field man. Address Box F-910, The Oil and Gas Journal, Tulsa, Okla.

HIGH CLASS Refining and Sales Executive, Technical Director, Development Engineer. Chief Chemist, Research Chemist. Many special qualifications. Record sent agencies or employers on request. Address Box F-941, The Oil and Gas Journal, Tulsa, Okla.

### Business Opportunities

FOR SALE OR CONTRACT. — Two large bodies of good Bentonite accessible. A. H. Davis, Canon City, Colo.

### Incorporations

**CHARTERS—Delaware best, quickest, cheapest, most liberal. Free forms. Colonial Charter Co., Wilmington, Del.**

**DELAWARE CHARTERS—Fees small, free forms. CHAS. G. GUYER, 901 Market St., Wilmington, Del.**

# CLASSIFIED ADVERTISING

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| 5 lines | 1.75 | 3.00 | 4.25 | 5.50 |
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**THE OIL AND GAS JOURNAL**
**Tulsa, Oklahoma**

### *For Sale—Equipment*

**25 K.W. and 40 K.W. Gas Engines, 220 volts, D.C. Two 100 K.W. Gas Engine Generator Sets, 220 volts, D.C. 7x6 Ingersoll-Rand ER-1 Air Compressor. Six-inch Oster Pipe Threading Machine. Also, large stock of lathes, pipe machines, milling machines, etc. Send for our list.**
**Terms to suit.**
**CINCINNATI MACHINERY & SUPPLY CO.**
**26 West 2nd St. Cincinnati, Ohio.**

TWO 120 H.P. at 600 R.P.M., new Atlas Diesel engines, $3,500 each. 1 used 80 H.P. Atlas Diesel engine, skid mounted, 2 pulleys, flexible couplings, $2,000. 2 rebuilt 120 H.P. Climax engines, skid, clutch, pulleys, $720 each. All F.O.B. Tulsa.
Paul Arbon & Co., Tulsa, Okla.

HEAVY Casing Standard Rig Equipment for sale. Includes 1,800' of 11¾" once run fifty-six pound Class D—Pittsburgh Seamless Pipe, wonderful buy one-half price; Standard all Steel Bull and Calf Wheels, Beams, Chain Driven Sand Reel, Steel House, etc. Finest equipment money can buy at bargain. Deep Oil Development Company, 9th Floor Hamilton Building, Wichita Falls, Tex.

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FOR SALE—Following material all in first-class condition: 3 Sharples Super Centrifuges Type M4P5L1 complete with 3 H.P. G.E. motors. 4 G.E. 15-30 H.P. 440V Induction Motors complete with controllers. 1 F. & M. 50 H.P. 60 cycle 440V 3-phase induction motor complete with F. & M. 440V motor starter. K. & S. Oil Co. P. O. Box 846, Tulsa, Okla. Phones 3-7082 and L.D. 748.

FOR SALE—50,000 ft. second hand 4-inch Byers wrought iron gas pipe, recessed collars. Address A. B. Ayers, Ayers Block, New Castle, Ind.

FOR SALE—One 84-ft. All Steel Rig, steel bullwheels, calfwheels, and beam, 6-inch irons, with complete string of tools, and 45 horsepower boiler.
One No. 45 Star Spudder, gasoline driven, with complete string of tools. Three Ford Tractors, with double drum hoists. All Chicago Deliveries.
WILLIAM H. CATER,
2643 W. Monroe St., Chicago, Illinois.

ONE 6-foot diameter, 16 bubble plate Jackson absorber, 90 lb. test. Location Texas Panhandle. Cash or terms. Address Box F-970, The Oil and Gas Journal, Tulsa, Okla.

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LIQUIDATING COMPLETE MARATHON REFINERY

located at Boynton, Okla. Cracking, skimming, lubricating, and latest type wax plant. Cost over $2,000,000.00 of which $1,500,000.00 expenditures in past 6 years, operated until January 1, 1934. Pipe stills, shell stills, 200 tanks of all sizes, over 150 pumps, 100 miles of pipe, 50,000 valves and fittings, all kinds pressure and recording instruments, complete automatic dial telephone system, 20—55,000 Bbl. storage tanks. Will sell all or any part at a fraction of cost. Inventory furnished on request. Wire, phone or write

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65,000 feet 4" 11.00-lb. Std. Black Line Pipe
52,000 feet 6" 19.45-lb. Std. Black Line Pipe
Threaded and Coupled
Just taken out of gas service—Like new
Immediate delivery from Arkansas City, Kansas
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CAST IRON Headers "T's," "L's" and other castings for Refinery casing head use. Oleum Refineries, Inc., Waco, Tex.

FOR SALE—Two 80 H.P. Clark and Norton Gas Engines. A-1 condition. Other gasoline plant equipment for sale. Box 533, Okemah, Oklahoma. Telephone 1633-F2.

COMPLETE refinery for sale, skimming and cracking plant, located in southern Okla., approx. 230,000 bbls. storage, 4 Dubbs cracking units, 5,000 bbls. skimming capacity. Further information will be furnished by writing to Box F-960, The Oil and Gas Journal, Tulsa, Okla.

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WANTED TO BUY — K-Type Star Spudder or a Fort Worth or Wichita Spudder and tools and tractor suitable to drill 2,000' deep. Give full particulars and price in first letter. Will also buy tools or fishing tools at a low price. P. O. Box 142, Tulsa, Okla.

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Analytical Work on Oil, Gas, Water and Cores
118 West Cameron
Tulsa

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MONTHLY INCOME ROYALTIES
SUPPLIED REPUTABLE
DEALERS FOR THEIR
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**Bought and Sold.**
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**Established 1916.**
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**SELECTING OIL ROYALTIES**
**for dealers a specialty.**
**Kansas-Oklahoma City-Seminole.**
**Chester Imes,**
**First National Bank Building,**
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For the Asking
Recognized as the Best.
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KANS.-OKLA. Producing Royalties, cheap. Leases-Royalty spreads in all active fields. Paul Haynes, Grantville, Kans.

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**Mid-Continent Area**
**Lon L. Simpson**
**Tulsa Loan Bldg., Tulsa, Okla.**

DEEDED ROYALTIES
WHOLESALE ONLY
Specializing in Groups and Combinations for fullest protection of principal and reasonable returns.
Individual Offerings for High Present returns—Undeveloped properties providing highly speculative possibilities.
Dealers Accounts exclusively.
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HUNT BLDG.
TULSA.

OIL REPORT SERVICE
A monthly service of Oklahoma Prorated Pools, giving Potentials, Pipe Line Runs and Allowables. Price $7.50. Clyde Kelly, 306 Petroleum Bldg., Okla.City, Ok.

PRODUCING OIL ROYALTIES
H. P. BOWEN
809 Daniel Bldg., Tulsa, Okla.

OIL ROYALTIES
Bought—sold. Maintain markets in active and inactive oil securities. Information and statistical data on royalties and oil investments upon request, to banks—dealers—individuals.
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Est. 1924
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HAVE FIVE wildcat drilling Blocks, good subsurface geology, Archer and Young Counties, Texas; 900 to 2,000-foot contracts and will sell half interest or offset acreage outright, or will sell full interest in well and acreage and keep small piece. B. H. Hilburn, 915 Hamilton Building, Wichita Falls, Tex.

ROYALTY under lands selected and leased by major companies. Small money buys large interests before drilling begins. Write for maps and details. R. R. Fisk, Box 395-B, Wichita Falls, Texas.

**HIGH GRADE producing oil and gas royalties offered to dealers. Billie Smallwood, P. O. Box 2261, Tulsa, Okla.**

**PRODUCING OIL ROYALTIES**
**in Fractional deeds from $100 up.**
**John L. Dickson, Box 1113, Tulsa, Okla.**

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**THE OIL AND GAS JOURNAL**
**Tulsa, Oklahoma**

### *Royalties—Production*

ANDREW J. BARRETT
The Philtower
Tulsa, Oklahoma.

HUBLER-JOHNSTON
Producing, semiproven and undeveloped royalties. Inquiries and offerings invited. 328 Ritz Bldg. Ph. 4-1592, Tulsa, Okla.

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Oil and Gas Royalties
Kansas-Oklahoma-Texas
L. H. Witwer
217 Cole Bldg., Tulsa, Oklahoma

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Exchange Bank Bldg., Tulsa, Okla.

FOR SALE — East Texas producing royalty. Contour 3220 — Rusk County. Nine wells—Major operator. Price $750 per acre. Sell 10 acres or more. Address owner, Box 164, Tyler, Texas.

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FOR SALE—Oil production and drilling blocks. La. and Tex. G. Lucas, 325 Ricou-Brewster Bldg., Shreveport, La.

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405 Joplin National Bank Building,
Joplin, Missouri.

WILL DRILL block with good surface geology, or close to production, or where there has been good showing, or good subsurface geology. Must be under 2,500 feet deep. All information in first letter. P. O. Box 142, Tulsa, Okla.

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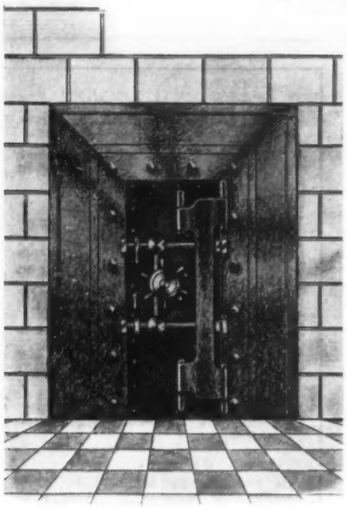

No business man would think of leaving them exposed to loss.

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The Oceco Vent Unit includes vent valve and flame arrestor. The evaporation savings alone will soon pay for the entire unit.

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877 Addison Road Cleveland, Ohio

*Engineering and Sales Service:*
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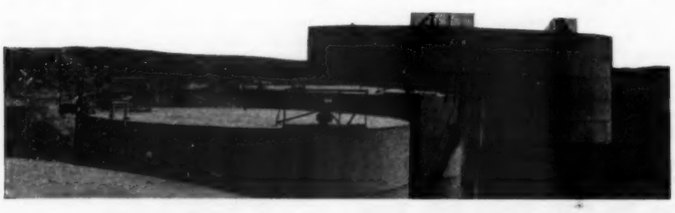
1031 S. Xanthus Pl., Tulsa, Okla.
Dravo-Doyle Co., Marquette Bldg., Chicago, Ill.



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